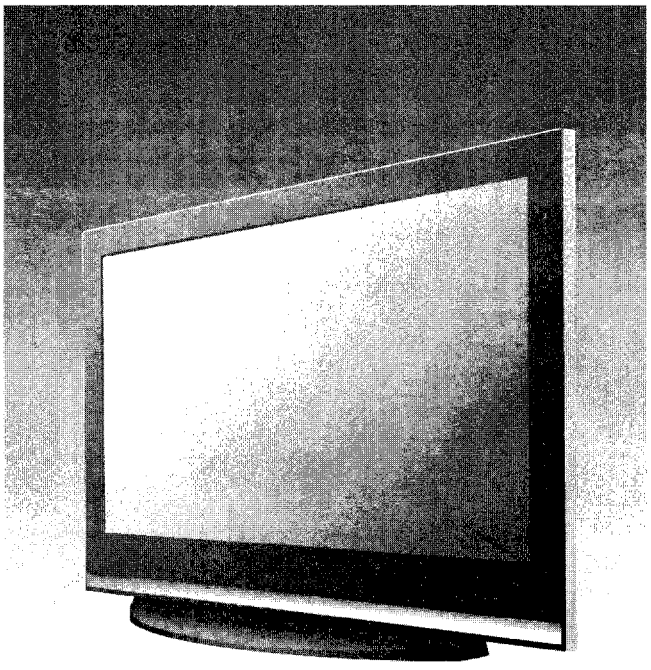
SAMSUNG

PDP-TELEVISION

Chassis : D74A(P_Europe_50HD)_Audi
Model : PS50Q7HX/XEC

SERVICE Manual

PDP-TELEVISION



PS-50Q7H

FEATURES

- DTV Ready PDP TV
- Supreme Picture Quality
  Supreme Convenience Quality
- RF, HDMI, 2 Scart, PC (Analog),
  Component, Video, S-Video
- Slim line design
- Energy Saving

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1. Precaution

To avoid possible damages or electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD.

1-1 Safety Precautions

1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure that no gaps exist between the cabinets for children to insert their fingers in to prevent children from receiving electric shocks. Gaps mentioned above include ventilation holes of a too great magnitude between the PDP module and the cabinet mask, and the improper installation of the rear cabinet.

   Errors may occur when the resistance is below 1.0 MΩ or over 5.2 MΩ.
   In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transformer for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).

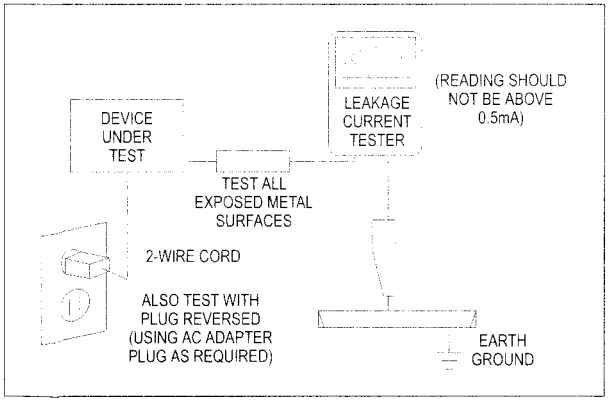

DEVICE UNDER TEST
LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Fig. 1-1 AC Leakage Test

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage.
   Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons.
   Without insulated transformers, the product can only be repaired safely when the chassis is connected to the earthed end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earthed ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new regular ones immediately. When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be bracketed with (⚠ ⚠). Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications). Irregular parts or materials may cause electric shock or fire.

1-2 Servicing Precautions

Warning 1: First carefully read the "Safety Instruction" in this service manual.
When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose. The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts are installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1 MΩ.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead. The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so ensure wearing protective gloves during the repair.

11. Due to the nature of plasma display panels, partial after-images may appear if a still picture is displayed on the screen for a long period of time.
    This is caused by brightness deterioration due to the storage effect of the panel, and to prevent this from happening, we recommend that the brightness and contrast are reduced.
    (e.g.) Contrast: 25, Brightness: 50

1-3 Static Electricity Precautions

1. Some semi-conductive ("solid state") devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or ass'ys. Alternatively, wear a dischargeable wrist-belt.
(Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD ass'y and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals.
Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices.
Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit ass'y.

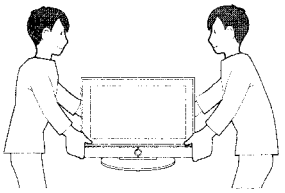
9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.



2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.

7. When connecting the RF antenna, check for a DTV receiving system and install a separate DTV reception antenna for areas with no DTV signal.

8. When installing the product, leave enough space (4") between the product and the wall for ventilation purposes.
   A rise in temperature within the product may cause fire.

9. When moving a PDP with removable speakers, detach the speakers first before moving the main body.
   Moving the PDP main body without separating the speakers may cause the speakers to detach, possibly causing damage or injury.

MEMO

2. Product Specification

2-1 Product Features

Block	Specfication	Major IC	Remark
RF	Tuner	TCLW3001PD32S(H)	SEMCO
Power	Sanken Electric Co. SMPS	50" HD SMPS	
Video	Scaler	SVP-PX	TRIDENT
	Video Decoder		
Sound	Sound Processor	STV8257DSX	ST Microelectronics
	Sound AMP	STA323W	ST Microelectronics
	Audio S/W	MM74HC4052	
PDP Module	Samsung SDI V5.1 Module	50" HD	SAMSUNG SDI
Remocon	TM87B		
Cabinet	Q7		

■ Chip Description

- SVP-PX (IC611) : SVPTMPX contains dual-purposed triple 10-bit high-precision and high speed video ADCs for both PC and video inputs, the high speed HDMI could support all HDMI inputs up to 135MHz with HDCP format, the high-performance multi-format 3D digital comb video decoder that supports NTSC, PAL, and SECAM*, a HDTV sync separator, motion adaptive de-interlacing engine, and the video format conversion engine, supporting multi-window display in many different output modes.
- STV8257DSX (IC503) : Digital Audio Decoder/Processor
- STA323W (IC505) : Audio power amplifiers

2-2 Key Features

Model	PS-50Q7H
Dimensions	1227.1(W) x 95.5(D) x 802.2(H) mm (Without Stand) 1227.1(W) x 340(D) x 844.8(H) mm (With Stand)
Weight	42.6 Kg (Without Stand) 49.0 Kg (With Stand)
Voltage	EU : AC 220-240V~, 50Hz CIS : AC 100-240V~, 50/60Hz
Colour System	PAL, SECAM, NT3.58, NT4.43
Sound System	BG, DK, I, L
Power Consumption	440 W
Number of Pixels	1366 (H) x 768 (V)
Screen Size	50 inches
ANTENNA input	VHF, UHF (75Ω unbalanced)
VIDEO input	SCART1, SCART2 AV (Side), S-VIDEO (Side) COMPONENT IN (480i/P, 576i/P, 720P, 1080i) PC IN (MINI D-SUB 15P) HDMI/DVI IN
AUDIO input	SCART1, SCART2 AV (Side), S-VIDEO (Side) Component PC DVI
AV Output	AUDIO OUT Headphone (Side)
Speaker Output	10W + 10W (8Ω) (Headphone Out : 10 mW MAX)
New Function	Blue eye

■ H/W Configuration
- Video : SVP-PX
- Sound : STA8257DSX, STA323W
- Tuner : TCLW3001PD32S (H)

■ S/W Configuration
- Main Micom : M30840SGP (IC202)
- Sub Micom : 3F866BXZZ (IC207)

■ Picture
- System : Video → PAL/SECAM/NTSC4.43, Sound → Analog
- Progressive
- Output resolution : 1366x768
- OSD : Smart user Interface
- Picture Enhancement : FRC
- Still picture, Noise reduction
- Comb Filter : 3D comb filter
- PIP : Large
- Panorama : Wide

■ Sound
- System : Stereo
- Output : 10W + 10W
- Speaker : built-in

■ Feature
- Component Interface (480i/480p/576i/576p/720p/1080i, Y/Pb/Pr)
- Digital Interface : HDMI
- Picture Size : Auto Wide/16:9/Wide4:3/Zoom/4:3
- Auto Store
- Sleep Timer : 180 minute
- Clock
- Zoom, Previous channel, Blue Screen, Color Tone, Screen Burn Protection

■ Remocon
- TM87B

■ Power Supply
- EU : AC 220-240V, 50Hz
- CIS : AC 100-240V~, 50/60Hz

■ Power Consumption
- Max Power : 440 W

■ Note
- You can input the DVI signal using the DVI ↔ HDMI conversion cable.
- When connecting HDMI input using the DVI ↔ HDMI conversion cable, connect the sound signal to the DVI Audio IN port using a separate connection cable.

■ Both screen position and size will vary, depending on the type of PC monitor and its resolution.
The table below shows all of the display modes that are supported: (N : Negative, P : Positive)

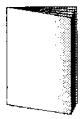
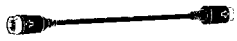
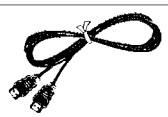
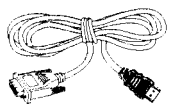
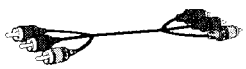
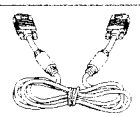
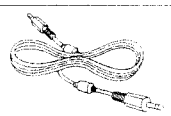
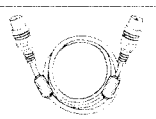
Video Signal	Resolution (Dot X Line)	Vertical Frequency (Hz)	Horizontal Frequency (KHz)	Vertical Polarity	Horizontal Polarity	PS-42C7S	PS-42C7H/ PS-42Q7H	PS-50C7H/ PS-50Q7H
IBM PC / AT Compatible	640 X 350	70.086	31.469	N	P	√	√	√
	720 X 400	70.087	31.469	P	N	√	√	√
	640 X 480	59.940	31.469	N	N	√	√	√
		70.000	35.000	N/P	N/P	√	√	√
		72.809	37.861	N	N	√	√	√
		75.000	37.500	N	N	√	√	√
	800 X 600	56.250	35.156	N/P	N/P	√	√	√
		60.317	37.879	P	P	√	√	√
		70.000	43.75	N/P	N/P	√	√	√
		72.188	48.077	P	P	√	√	√
		75.000	46.875	P	P	√	√	√
	848 x 480	60.000	31.020	P	P	√	√	
		74.769	37.684	P	N	√	√	
	1024 X 768	60.004	48.363	N	N		√	√
		70.069	56.476	N	N		√	√
		72.000	57.672	N/P	N/P		√	√
		75.029	60.023	P	P		√	√
	1280 X 720	59.855	44.772	P	N			√
	1360 X 768	60.015	47.712	P	P			√

▶ The interlace mode is not supported.
▶ The TV operates abnormally if a non-standard video format is selected.
▶ 480i/p, 576i/p, 720p, or 1080i is not available in PC mode.
▶ The PC text quality is optimum in WVGA mode (848 x 480@60Hz). (PS-42C7S)
▶ The PC text quality is optimum in XGA mode (1024 x 768@60Hz). (PS-42C7H/PS-42Q7H)
▶ The PC text quality is optimum in WXGA mode (1360 x 768@60Hz). (PS-50C7H/PS-50Q7H)

2-3 Specifications Analysis

Model		PS-50Q7H (Audi-50HD)	Puccini(V4)
Design			
Basic	Display Type	PDP TV	PDP TV
	Built-In Tuner	X	O
	Resolution	1366 x 768	1366 x 768
	PDP Module	Samsung SDI V5.1	V4
	Screen Size	50 inches	50 inches
	Aspect Ratio	16 : 9	16 : 9
	Power Consumption	440 W	420 W
	Dimensions	1227.1(W) x 95.5(H) x802.2(D) mm	48.43 (W) x 32.52 (H) x 3.72 (D) inches
	Weight	42.6 Kg / 93.9 lbs	46.8 Kg / 103.17 lbs
Picture	Brightness	1,000 Cd/m2	1,300 Cd/m2
	Contrast Ratio	10,000 : 1	10,000 : 1
	Image Enhacer	DNIe FRC	DNIe-L
Audio	Equalizer	5 Band	5 Band
	Auto Volume	O	O
	Surround Sound	SRS TruSurround XT Dolby Digital	SRS TruSurround
	Speaker Output	10 W + 10 W	15 W + 15 W
	Speaker	Included	Included
Features	PIP	O	O
	Double Screen	X	O
	TTX	O	O
	Still Image	O	O
	My Color Control	X	O
	Color Weakness	X	O
	Energy Saving	O	O
	Screen Burn Protection	O	O
Connections	Antenna	1 Input	1Input
	CVBS	1 AV	1AV
	S-Video	1 Input	1 Input
	Component(Y/PB/PR)	1 Input	1 Input
	PC(D-SUB)	1 Input	1 Input
	DVI	X	X
	HDMI	1 Input	1 Input
	Sub Woofer	X	X
	Optical	X	X
	Coaxial	X	X

2-4 Accessories

Accessories		Item	Item code	Remark
Supplied Accessories		User Manual	BN68-01022G	Samsung Service center
		Remote Control AAA Batteries	BN59-00539A 4301-000103	
		Power Cord	3903-000145	
Accessories that can be purchased additionally		S-VIDEO Cable	-	Internal shopping mall
		HDMI Cable	-	
		HDMI/DVI cable	-	
		Component Cables (RCA)	-	
		PC Cable	-	
		PC Audio Cable	-	
		Scart Cable	-	
		Antenna Cable	-	

3. Alignment & Adjustment

3-1 Service Instruction

■ Before Performing After Sales Services

1. Check if the measurement and test equipment is working properly.

2. Secure sufficient work space for disassembling the product.

3. Prepare a soft pad for disassembling the product.

3-2 How to Access Service Mode

1. General Remote

   To Enter : Power Off → INFO → MENU → MUTE → Power On
   (Interval between key strokes : less than 3 sec)

   To Exit : Power Off → On

2. Factory Remote

   To Enter : Power On → INFO → FACTORY Key (Interval between key strokes : less than 3 sec)

   To Exit : Power Off → On
   Press the Factory key twice with a key stroke interval of more than 1 second (Pressing once enters Aging Mode)

3. Settings when entering Factory mode
   - Sharp Screen (Dynamic), Color Tone (Cool1), Factory (Dynamic CE Off)

4. Adjustment Procedures
   - Channel ▲ ▼ Key : Select an item.
   - Volume ◀ ▶ Key : Adjust the value up or down.
   - MENU Key : Save the changes to the EEPROM and return to the higher-level mode.
   - Using the Numeric (0~9) keys, you can select a channel.
   - Using the SOURCE key, you can switch AV modes.

5. Initial SERVICE MODE DISPLAY State

   1. Calibration
   2. Option Table XXXX XXXX
   3. White Balance
   4. SVP-FX
   5. Option Block
   6. STV8257/STA323W
   7. YC Delay
   8. Adjust
   9. -----
   10. W/B MOVIE
   11. Checksum
   12. Reset
   13. -----

   T-AUD50PEUHC-XXXX (Main Micom Ver)
   T-AUDMPEUS-XXXX (Sub Micom Ver)
   Month / Day / Year / Hour / Min. / Sec.

※ The version of the firmware displayed at the bottom of the screen may differ and the firmware is subject to change for the improvement of product functions.

※ If you have adjusted the settings in Service Mode, you have to reset the product.

3-3 Factory Data

★ The underlined are items applied during the service adjustment. None of the others should be adjusted.

1. Calibration
2. Option Table XXXX XXXX
3. White Balance
4. SVP-FX
5. Option Block
6. STV8257/STA323W
7. YC Delay
8. Adjust
9. -----
10. W/B MOVIE
11. Checksum
12. Reset
13. -----
    T-AUD50PEUHC-XXXX (Main Micom Ver)
    T-AUDMPEUS-XXXX (Sub Micom Ver)
    Month / Day / Year / Hour / Min. / Sec.

1. Calibration : W/B Calibration

   AV Calibration
   DTV Calibration
   PC Calibration
   HDMI Calibration

2. Option Table : Setting option

Blue Eye	: ON
Gamma	: OFF
Logic D/L	: OFF
Auto Power	: ON
Dyn CE	: ON
EnergySave	: OFF
LBE/FBE	: OFF
FRC-Micronas	: OFF
FRC-Samsung	: OFF
LNA	: OFF
CarrMute	: OFF
Language	: English
Shop Mode	: OFF
High Deviation	: OFF
TTX	: ON
TTX List	: Flof
Dynamic AslGain	: OFF
Tuner TOP	: 8
TTX Group	: Auto
TTX Level	: L1.5
PS Test	: MIN
LED OnTime	: 10
LED OffTime	: 0
Debug	: OFF
Ch. Table	: SESK
iDTV Country	: UK
ACR	: OFF

3. White Balance : Adjustment White Balance (Range 0~255)

Sub Bright	: 110
R-Offset	: 113
G-Offset	: 128
B-Offset	: 128
Sub Contrast	: 133
R-Gain	: 126
G-Gain	: 128
B-Gain	: 134

1. Calibration
2. Option Table XXXX XXXX
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7. YC Delay
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9. -----
10. W/B MOVIE
11. Checksum
12. Reset
13. -----
T-AUD50PEUHC-XXXX (Main Micom Ver)
T-AUDMPEUS-XXXX (Sub Micom Ver)
Month / Day / Year / Hour / Min. / Sec.

→

4. SVP-PX : SVP-PX Correct Register

ComB Filter : Y-Filter - 80H

Sharpness :

	RF/AV	COMP	PC	HDMI
H2Gain	0FH	10H	10H	08H
H4Gain	10H	04H	04H	00H
V2Gain	10H	10H	10H	08H
V4Gain	10H	04H	04H	04H
Sr2Gain	00H	00H	00H	00H
Sr4Gain	00H	00H	00H	00H
SI2Gain	00H	00H	00H	00H
SI4Gain	00H	00H	00H	00H
Peakth1	00H	00H	00H	00H
Peakth2	40H	80H	80H	80H
Peakth3	00H	00H	00H	00H

NR :

YNROFF	80H
CNROFF	80H
YNRON	80H
CNRON	80H

RGB Calibration :

	RF/AV	COMP	PC	HDMI
R-Offset	4EH	4CH	49H	48H
G-Offset	4EH	4CH	49H	48H
B-Offset	4EH	4CH	49H	48H
R-Gain	7CH	7BH	78H	9DH
G-Gain	7CH	7BH	80H	9DH
B-Gain	7CH	7BH	7AH	9DH

ADC Calibration :

	RF/AV	COMP	PC	HDMI
TCD3 Contrast	82H	78H	78H	78H
TCD3 Brightness	21H	20H	20H	20H
TCD3 CR	80H	80H	80H	80H
TCD3 CB	80H	80H	80H	80H
TCD3 Delay	00H	00H	00H	00H
Analog Y Offset	40H	40H	42H	40H
Analog PB Offset	80H	80H	38H	80H
Analog PR Offset	80H	80H	39H	80H
Analog Y Gain	D6H	DAH	D0H	D6H
Analog PB Gain	FEH	9AH	80H	FEH
Analog PR Gain	FEH	9AH	80H	FEH
Black Level	00H	00H	00H	00H
SVP Brightness	00H	00H	00H	00H

Calibration Target :

	low	high	delta
AV ADC	10H	F8H	04H
COMP ADC	10H	F8H	04H
PC ADC	10H	F8H	04H
ALL RGB	04H	F8H	10H

1. Calibration
2. Option Table XXXX XXXX
3. White Balance
4. SVP-FX
5. Option Block
6. STV8257/STA323W
7. YC Delay
8. Adjust
9. -----
10. W/B MOVIE
11. Checksum
12. Reset
13. -----
T-AUD50PEUHC-XXXX (Main Micom Ver)
T-AUDMPEUS-XXXX (Sub Micom Ver)
Month / Day / Year / Hour / Min. / Sec.

5. Option Block

FRC-Micronas		
FRC-Samsung	: Patt Sel	00H
	B Ratio	00H
	W Ratio	50H
	Pdf Min	55H
	Urd Th	33H
	Max Gain	01H
	Test Mcc	80H
	Oclk Phase	70H
	Cep Bypass	64H
	Bws Bypass	00H
	Mcc Bypass	80H
	Dnie Bypass	4FH
	Full Bypass	54H
	Ramp Speed	3EH
	Nolinear On	42H
	OccModeOn	40H
	Text En	40H
	Rep Mode	3DH
	PC C Coeff	45H
	PC B Coeff	00H
	Dout Mode	00H
LBE/FBE		

6. STV8257/STA323W : Sound IC Correct Register

Ch1 Volume	: 55H
Ch2 Volume	: 55H
AGC Gain	: 07H
AM-Prescale	: 00H
ZWT TH	: 0AH
AV Delay	: 55H
Comp Delay	: 32H
HDMI Delay	: 32H
PC Delay	: 32H
L1 Att/Rel Th	: EDH

1. Calibration
2. Option Table XXXX XXXX
3. White Balance
4. SVP-FX
5. Option Block
6. STV8257/STA323W
7. YC Delay
8. Adjust
9. -----
10. W/B MOVIE
11. Checksum
12. Reset
13. -----
T-AUD50PEUHC-XXXX (Main Micom Ver)
T-AUDMPEUS-XXXX (Sub Micom Ver)
Month / Day / Year / Hour / Min. / Sec.

7. YC Delay

PAL B/G	: 99H
PAK D/K	: 88H
PAL I	: 88H
SECAM B/G	: 88H
SECAM D/K	: 77H
SECAM L/L'	: 66H
NTSC 3.58	: 95H
NTSC 4.43	: CCH
AV PAL	: AAH
AV SECAM	: 55H
AV NT3.58	: 98H
AV NT4.43	: CCH
AV PAL60	: 77H

8. Adjust

V Mute Time	: 10	
Melody Volume	: 9	
Ana_Dimm_Max	: FEH	
TTX Contrast	: 50	
TTX Brightness	: 50	
TTX Color	: 50	
Dynamic Contrast	: 100	
Dynamic Sharpness	: 60	
Standard Contrast	: 90	
Standard Brightness	: 80	
Standard Color	: 70	
Standard Sharpness	: 70	
Movie Contrast	: 60	
Movie Brightness	: 50	
Movie Color	: 50	
Movie Sharpness	: 40	
LNA PLUS	: RFDB-1 Level	2
	RFDB-2 Level	5
	RFDB-3 Level	9
	RFDB-4 Level	24
Hotel Option	: Hotel Mode	OFF
	PWR On CH	1
	PWR On Vol.	10
	Max Volume	100
	L.Key Lock	OFF
	PWR On Src	RF

9. -----

1. Calibration
2. Option Table XXXX XXXX
3. White Balance
4. SVP-FX
5. Option Block
6. STV8257/STA323W
7. YC Delay
8. Adjust
9. -----
10. W/B MOVIE
11. Checksum
12. Reset
13. -----
T-AUD50PEUHC-XXXX (Main Micom Ver)
T-AUDMPEUS-XXXX (Sub Micom Ver)
Month / Day / Year / Hour / Min. / Sec.

10. W/B MOVIE

	RF/AV	COMP	PC	HDMI
WB Movie	OFF	OFF	OFF	OFF
Color Mode	Movie	Movie	Movie	Movie
Color Tone	Warm2	Warm2	Warm2	Warm2
W1 R Gain	131	131	130	132
W1 B Gain	118	117	119	118
W1 R Offset	131	129	138	128
W1 B Offset	127	131	115	129
W2 R Gain	133	133	134	134
W2 B Gain	104	109	115	110
W2 R Offset	127	128	141	128
W2 B Offset	132	120	113	119
Movie Contrast	70	70	70	70
Movie Brightness	50	50	50	50
Movie Color	45	45	45	45
Movie Sharpness	25	25	25	25

11. Checksum

12. Reset

13. -----

3-4 Service Adjustment

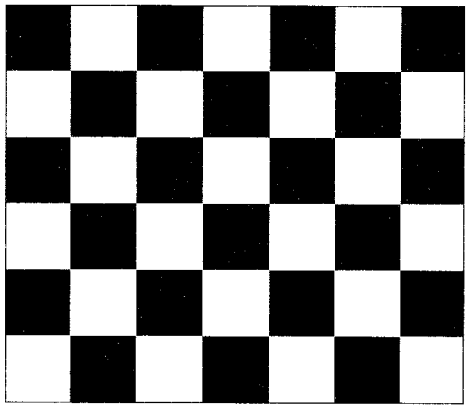
3-4-1 White Balance - Calibration

If picture color is wrong, do calibration first.

Execute calibration in Factory Mode

1. Source : VIDEO
2. Setting Mode : PAL Video (MODE : #2)
3. Pattern : Pattern #24 (Chess Pattern)
4. Use Equipment : K-7256 or Equipment of equality level
5. Work order
   1) Enter by Factory Mode select "1.CALIBRATION".
   2) Select "AV CALIBRATION" again in CALIBRAION MENU.
   3) After Completing Calibration, come out "Av success". OSD on the screen (bottom-side) for about 3 seconds.

Source AV : PAL composite, Component : 1280*720/60Hz
PC : 1024*768/60Hz



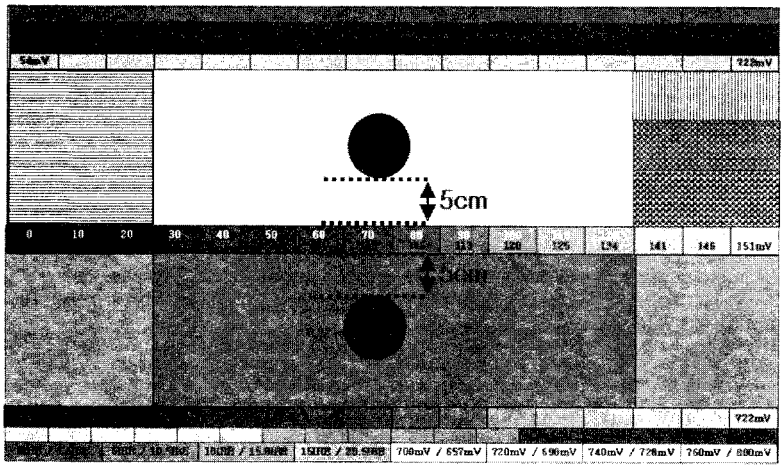
(Chess Pattern)

3-4-2 White Balance - Adjustment

If picture color is wrong, check White Balance condition.

Equipment : CA210, Patten : Toshiba
Adjust W/B in Factory Mode

Sub brightness and R/G/B Offset controls low light region
Sub contrast and R/G/B Gain controls high light region
Source AV : PAL composite, Component : 1280*720/60Hz,
HDMI[DVI] : 1280*720/60Hz



(SAMSUNG WHITE BALANCE Adjustment PATTERN with FPD)

[Test Pattern : MSPG-945 Series Pattern #16]

* Color temperature
1500K +/-500, -6 ~-20 MPCD

* Color coordinate
H/L : 270/280 +/- 2
L/L : 270/280 +/- 3, 2.1 Ft +/-0.05 Ft

3-4-3 Conditions for Measurement

1. On the basis of toshiba ABL pattern : High Light level (57 IRE)
   - INPUT SIGNAL GENERATOR : MSPG-925LTH
   * Mode No 2 : 744X484@60 Hz
   No 6 : 1280X720@60 Hz
   No 21 : 1024X768@60 Hz
   * Pattern No 36 : 16 Color Pattern
   No 16 : Toshiba ABL Pattern

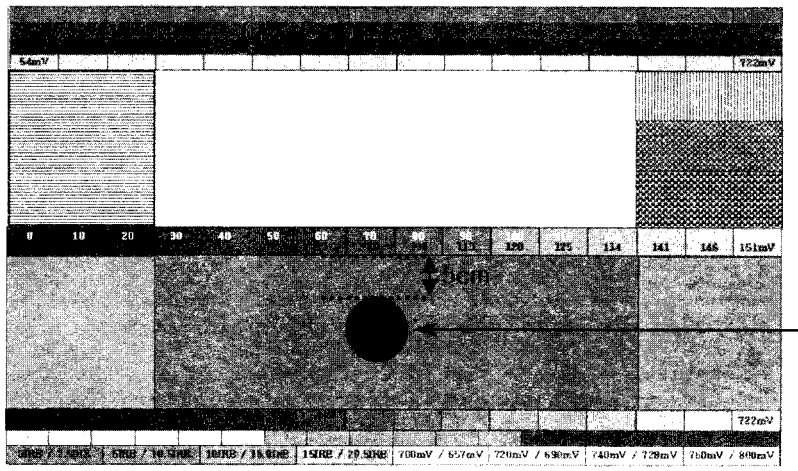
2. Optical measuring device : CA210 (FL)
   Please use the MSPG-925 LTH generator for model PS-42E7H / PS-42E7HD / PS-42C7H.

3-4-4 Method of Adjustment

1. Adjust the white balance of AV, Component and DVI Modes.
   (AV → Component)
   a) Set the input to the mode in which the adjustment will be made (RF → DTV → PC → DVI).
      * Input signal - VIDEO Mode : Model #2 (744*484 Mode), Pattern #16
      - DTV, DVI Mode : Model #6 (1280*720 Mode), Pattern #16
      - HDMI Mode : Model #6 (1280*720 Mode), Pattern #16

   b) Enter factory color control, confirm the data.

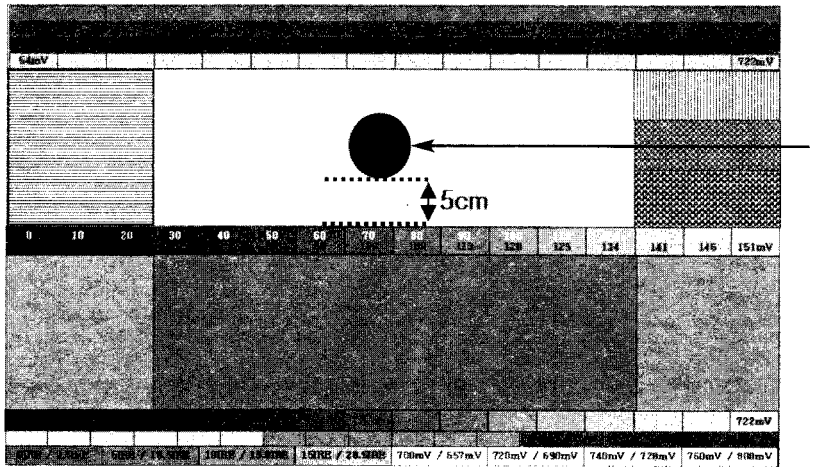
   c) Adjust the low light. (Refer to table 1, 2 in adjustment position by mode)
      - Adjust sub - Brightness to set the 'Y' value.
      - Adjust red offset ('x') and blue offset ('y') to the color coordinates.



(SAMSUNG WHITE BALANCE Adjustment PATTERN with FPD)

   * Do not adjust green offset data.

   d) Adjust the high light. (Refer to table 1, 2 in adjustment position by mode)
      - Adjust red gain ('x') and blue gain ('y') to the color coordinates.



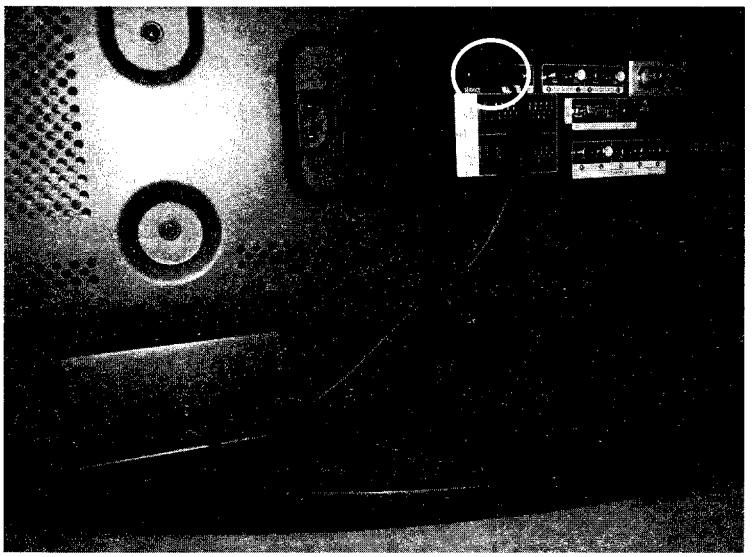
(SAMSUNG WHITE BALANCE Adjustment PATTERN with FPD)

   * Do not adjust the green gain and sub-contrast (Y) data.

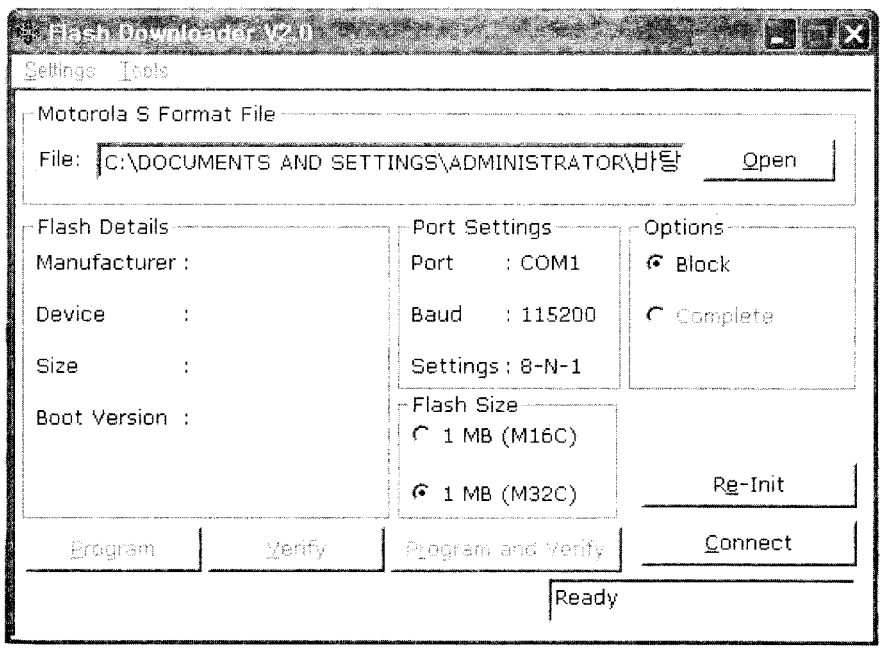
3-5 Software Upgrade

3-5-1 How to Update Flash ROM

1. Installthe Flash Downloader
   Connect Set (Service Jack) and Jig Cable to execute Program Update.



2. Flash Downloader program update
   - Before Turning on the set, Click "connect" which is under of OSD Screen.
   - Turn on the Set.



3-6 Replacements & Calibration

※ The ASS'Y code can be changed, see "5 Chapter. Electrical Part List."

* Check items listed after changing each

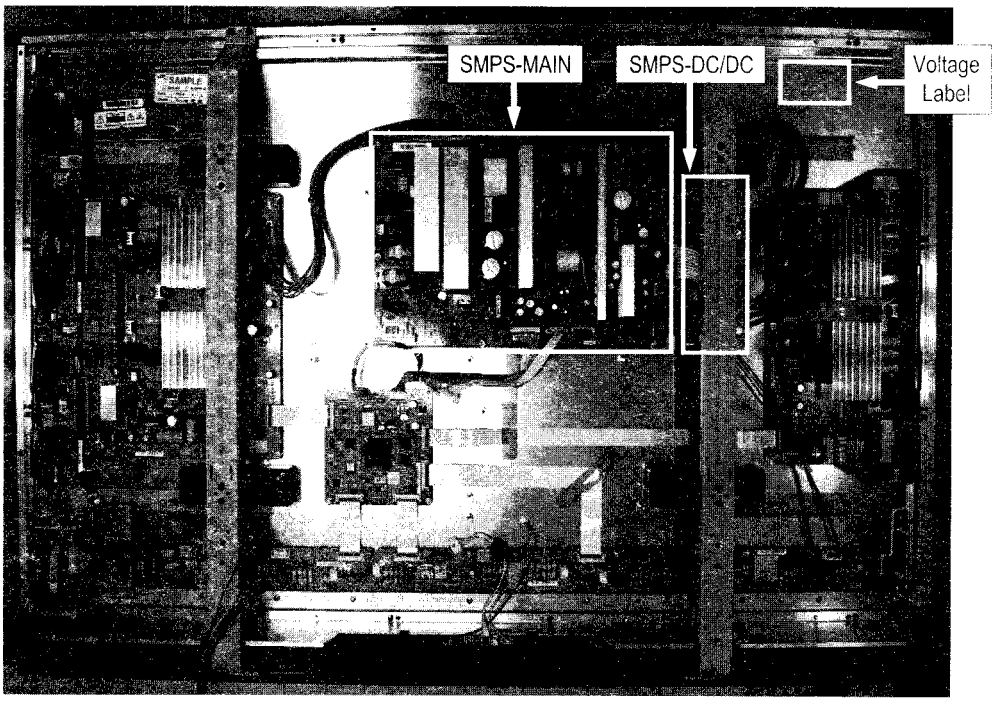
Replaced Items	Code No.	Check Items
ASSY PCB MISC-MAIN	BN94-00958A	1) Auto Program 2) Let the user go through subscription process after contacting user's cable service provider.
ASSY PCB P-SMPS(MAIN)	BN96-03051A	Vs, Va voltage check and adjust
ASSY PCB P-SMPS(DC DC)	BN96-01856A	Output voltage check and adjust
ASSY PDP P-LOGIC BOARD	BN96-03366A	Not adjustment
ASSY PDP P-X MAIN BOARD	BN96-03359A	
ASSY PDP P-Y MAIN BOARD	BN96-03360A	
ASSY PDP P-Y UPPER SCAN BOARD	BN96-03361A	
ASSY PDP P-Y LOWER SCAN BOARD	BN96-03362A	
ASSY PDP P-ADDRESS E BUFF BOARD	BN96-03363A	
ASSY PDP P-ADDRESS F BUFF BOARD	BN96-03364A	
ASSY PDP P-ADDRESS G BUFF BOARD	BN96-03365A	

※ When replacing the SMPS or PDP panel, you have to check the voltage printed on the panel sticker and adjust it.

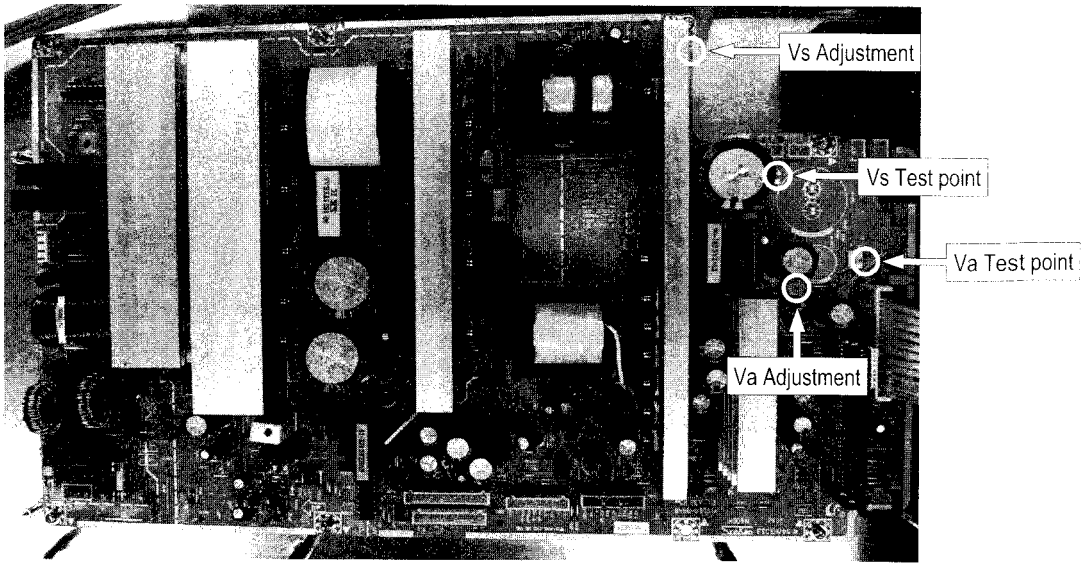
3-6-1 Voltage Adjustment

1. After replacing the SMPS or PDP panel, you must adjust the voltage referring to the voltage label printed on the panel. (If you do not adjust the voltage, an abnormal discharge symptom may appear.)

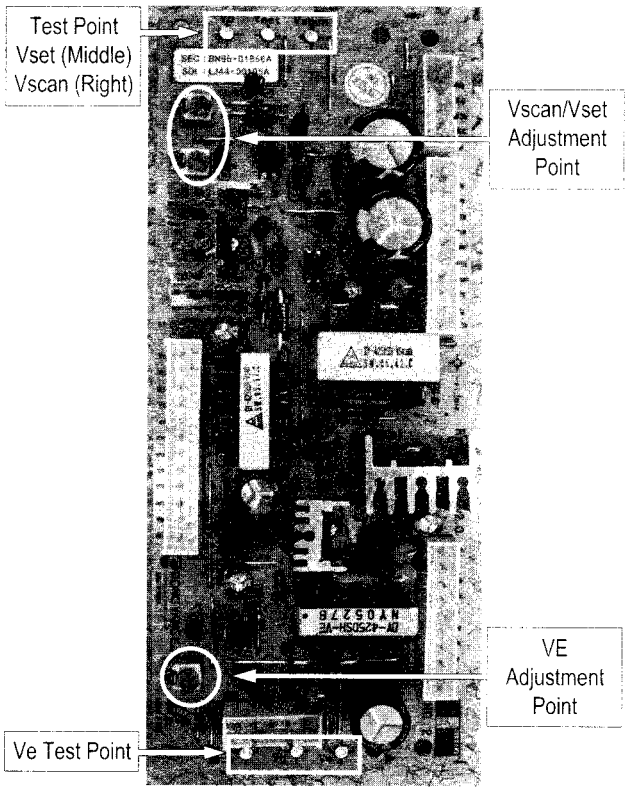
	Value	Board Adjustment
Vs	200	SMPS-MAIN
Va	65	
Vset	190	SMPS-DC/DC
Ve	115	
Vscan	-190	



2. A point of adjusting SMPS-MAIN voltage.



3. A point of adjusting SMPS-DC/DC.

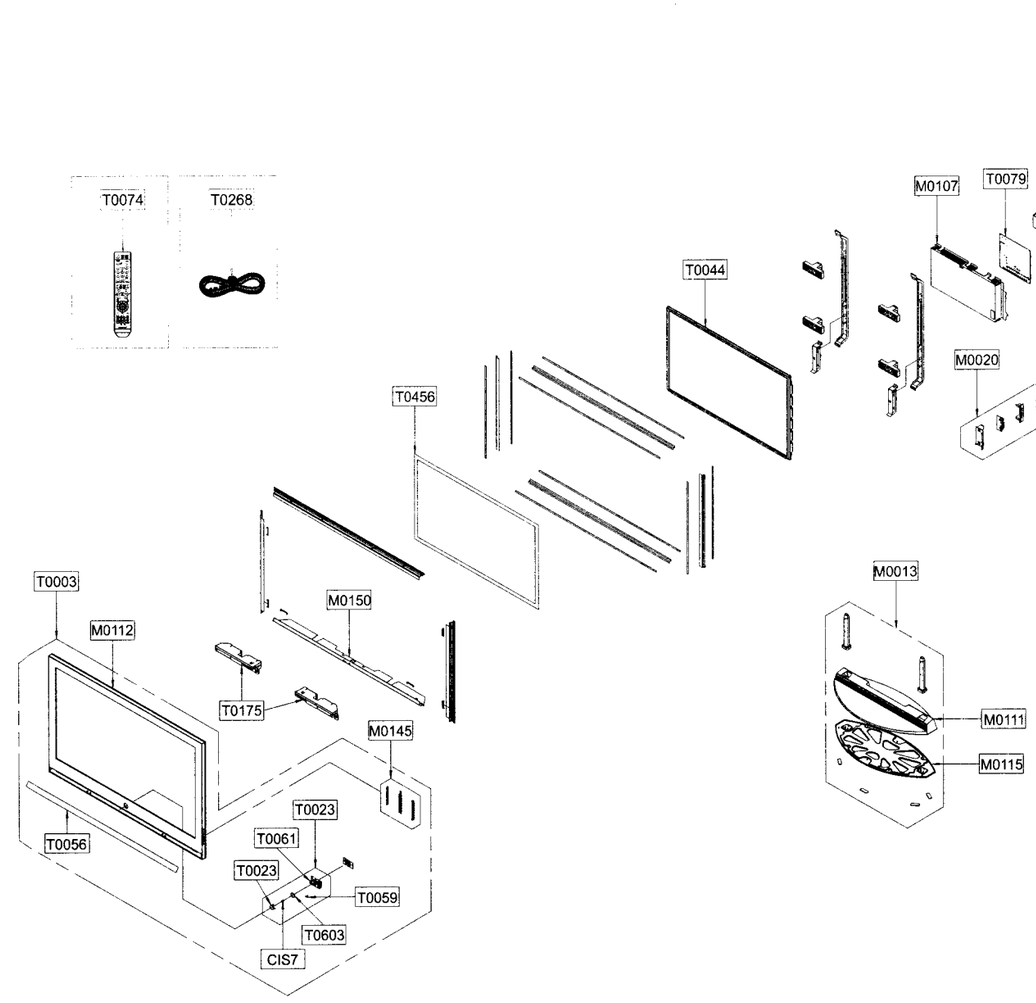


* Use base chassis of PDP panel as GND point.

4. Exploded View & Part List

4-1 PS50Q7HX/XEC

You can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr



Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
CIS7	AA61-60003B	SPRING ETC-CS	-,SUS304,-,-,OD11.2,N7,OD1	1	S.N.A	
M0006	BN63-02389A	COVER-REAR	50C7,PCM,T0.5	1	S.N.A	
M0013	BN96-03161A	ASSY COVER P-REAR	50C7,P7,PCM T0.5	1	S.A	
M0013	BN96-03154A	ASSY STAND P-BASE	Q7,HGI T3.0,BK23,Round	1	S.A	
M0020	BN96-03075G	ASSY BOARD P-SIDE AV	AUDI,SJ06-01-004G,S	1	S.N.A	
M0107	BN61-02315D	BRACKET-PCB	42C7,SECC,0.8	1	S.N.A	
M0111	BN63-02564A	COVER-STAND	Q7,ABS,HB,SF0507,BK23	1	S.N.A	
M0112	BN63-02390C	COVER-FRONT	50Q7/P7H,ABS,HB,XEC,BK23	1	S.N.A	
M0115	BN61-02338A	BRACKET-STAND	42C7,SECC,3.0	1	S.N.A	
M0145	BN96-02784B	ASSY BOARD P-FUNCTION	CADILLAC,SJ06-01-0	1	S.A	
M0150	BN96-03182A	ASSY BRACKET P-FILTER BOTTOM	50C7,P7,A60	1	S.N.A	
T0003	BN96-03765C	ASSY COVER P-FRONT	50Q7(HQ),ABS HB,BK23	1	S.A	
T0023	BN96-03173A	ASSY COVER P-KNOB POWER	42P7,ABS	1	S.N.A	
T0023	BN64-00459A	KNOB POWER	42P7,PC,Violet	1	S.N.A	
T0044	BN96-03290A	ASSY PDP MODULE P-PDP MODULE	M1,50HD,V5.	1	S.A	
T0056	BN63-02391A	COVER-DECORATION	50Q7,PC SHEET,T0.5,Silv	1	S.N.A	
T0059	BN64-00461A	INDICATOR LED	42P7,PMMA	1	S.N.A	
T0061	BN64-00462A	WINDOW-REMOCON	42P7,ACRYL,5%	1	S.N.A	
T0074	BN59-00539A	REMOCON	AUDI,TM87B,SAMSUNG,54Key,31mArms	1	S.A	
T0079	BN94-00958A	ASSY PCB MISC-MAIN	PS50Q7HX/XEC,D74A	1	S.N.A	
T0175	BN96-03392A	ASSY SPEAKER P	8ohm,Q7,10W,2Way,2speaker	1	S.A	
T0268	3903-000145	CBF-POWER CORD	DT,EU,FP3/YES,U(IEC C13-R	1	S.A	
T0448	BN96-03144D	ASSY BRACKET P-TERMINAL	42C7,P7,SECC T0.	1	S.N.A	
T0456	BN67-00173A	GLASS-FILTER EMI	50" C7 No B/C,Mesh,T=44	1	S.A	
T0603	BN64-00460A	KNOB-DECORATION POWER	42P7,ABS,HB,AL	1	S.N.A	

5. Electrical Part List

5-1 PS50Q7HX/XEC Service Item

You can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
M0013	BN96-03154A	ASSY STAND P-BASE	Q7,HGI T3.0,BK23,Round	1	S.A	
M0013	BN96-03161A	ASSY COVER P-REAR	50C7,P7,PCM T0.5	1	S.A	
M0018	BN97-00857A	ASSY MICOM	T-AUDMPEU-S-1001,PS42E7,D74A,	1	S.A	
M0018	BN97-00949A	ASSY MICOM	T_XXXX_XXXX,D75A,20060203	1	S.A	
M2893	BN39-00477A	LEAD CONNECTOR-LVDS	D66A/SPD-50P4HD,UL20	1	S.A	
M2893	BN39-00632A	LEAD CONNECTOR	HPR4252,UL1617#22,UL/CSA.	1	S.A	
M2893	BP39-00053E	LEAD CONNECTOR	HP-R4252,UL1007#26,UL/CSA	1	S.A	
M2893	MD39-00074G	LEAD CONNECTOR	V18C,UL1007#26,UL/CSA,12P	1	S.A	
T0003	BN96-03765C	ASSY COVER P-FRONT	50Q7(HQ),ABS HB,BK23	1	S.A	
T0044	BN96-03290A	ASSY PDP MODULE P-PDP MODULE	M1,50HD,V5.	1	S.A	
T0074	BN59-00539A	REMOCON	AUDI,TM87B,SAMSUNG,54Key,31mArm	1	S.A	
T0079	BN94-00958A	ASSY PCB MISC-MAIN	PS50Q7HX/XEC,D74A	1	S.A	
T0159	BN96-01856A	ASSY PCB P-SMPS	SPD-50P5HD(DC_DC),200Vin	1	S.A	
T0159	BN96-03051A	ASSY PCB P-SMPS	HPS5053,Free Voltage,245	1	S.A	
T0175	BN96-03392A	ASSY SPEAKER P	8ohm,Q7,10W,2Way,2speaker	1	S.A	
T1910	BN96-03359A	ASSY PDP MODULE P-X MAIN BOARD	50HD,PL50	1	S.A	
T1911	BN96-03360A	ASSY PDP MODULE P-Y MAIN BOARD	50HD,PL50	1	S.A	
T1912	BN96-03361A	ASSY PDP MODULE P-Y MAIN UPPER	50HD,PL50	1	S.A	
T1913	BN96-03362A	ASSY PDP MODULE P-Y MAIN LOWWE	50HD,PL50	1	S.A	
T1914	BN96-03363A	ASSY PDP MODULE P-ADDRESS E BU	50HD,PL50	1	S.A	
T1915	BN96-03364A	ASSY PDP MODULE P-ADDRESS F BU	50HD,PL50	1	S.A	
T1916	BN96-03365A	ASSY PDP MODULE P-ADDRESS G BU	50HD,PL50	1	S.A	
T1917	BN96-03366A	ASSY PDP MODULE P-LOGIC MAIN B	50HD,PL50	1	S.A	

MEMO

6. Troubleshooting

6-1 First Checklist for Troubleshooting

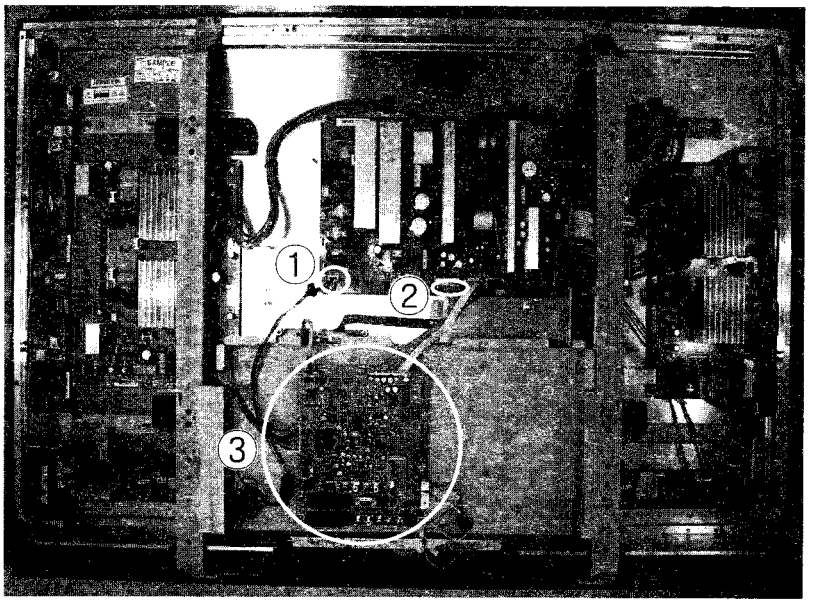
1. Check the various cable connections first.
   - Check to see if there is a burnt or damaged cable.
   - Check to see if there is a disconnected cable connection or a connection is too loose.
   - Check to see if the cables are connected according to the connection diagram.

2. Check the power input to the Main Board.

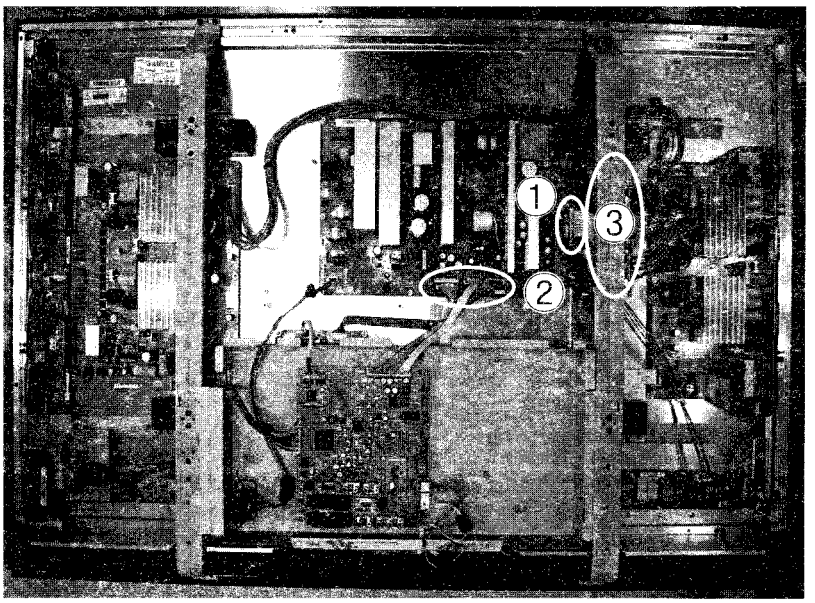
3. Check the voltage in and out between the SMPS ↔ Main Board, between the SMPS ↔ X, Y Main Board, and between the Logic Boards.

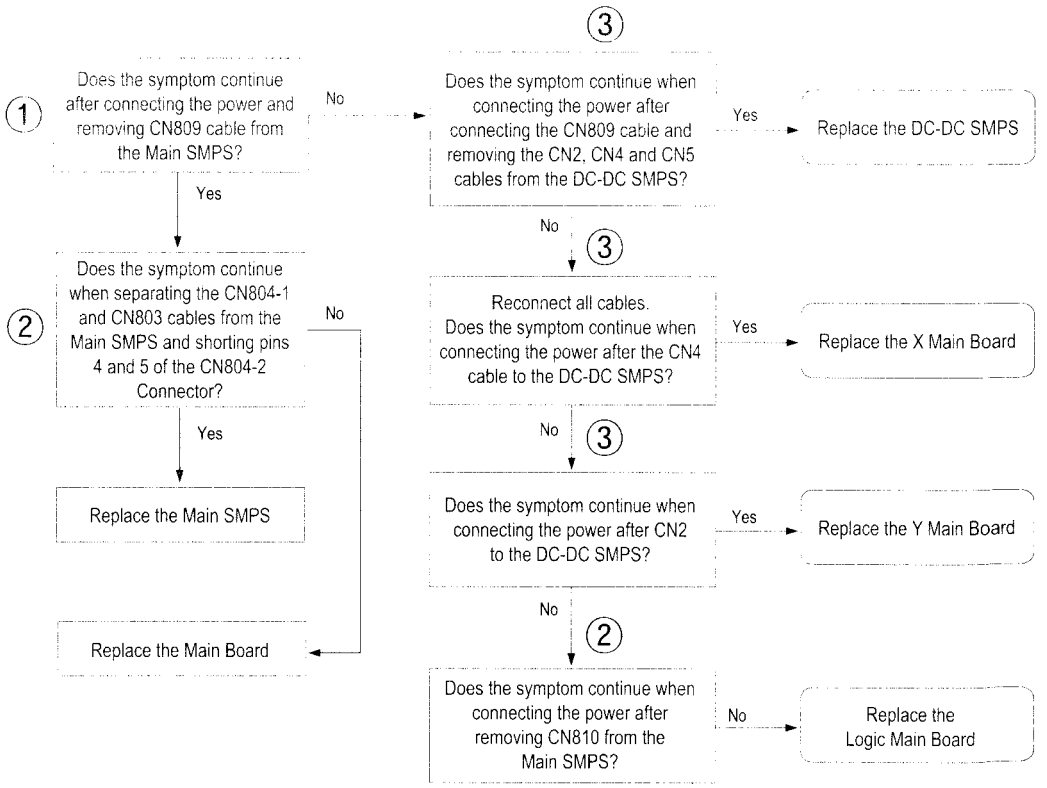
6-2 Checkpoints by Error Mode

6-2-1 No Power

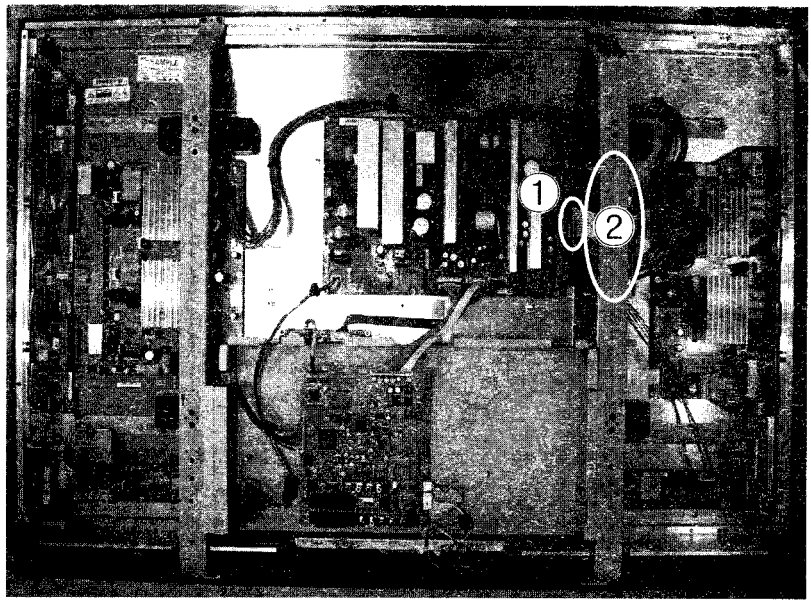
Symptom	- The LEDs on the front panel do not work when connecting the power cord. - The SMPS relay does not work when connecting the power cord. - The power of the unit seems to be out of order.
Major Checklist	The SMPS relay or the LEDs on the front panel do not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is out of order. In this case, check the following: - Check the internal cable connection status inside the unit. - Check the fuses of each part. - Check the output voltage of SMPS. - Replace the Main Board.
Troubleshooting Procedures	 ① Are the AC IN socket connector and the Main SMPS CN800 connected? — No → Connect The AC IN socket connector and the Main SMPS CN800 Yes ① Is the Fuse (F101) of the Main SMPS Power Input Part blown? — No → Replace the Main SMPS Yes ② Check Main SMPS 804-1 Pin 10 : STB 5V = 5V Pin 8 : PS-ON = 0V — No → Replace the Main SMPS Yes ③ Replace the Main Board

6-2-2 When the unit is repeatedly turned on and off

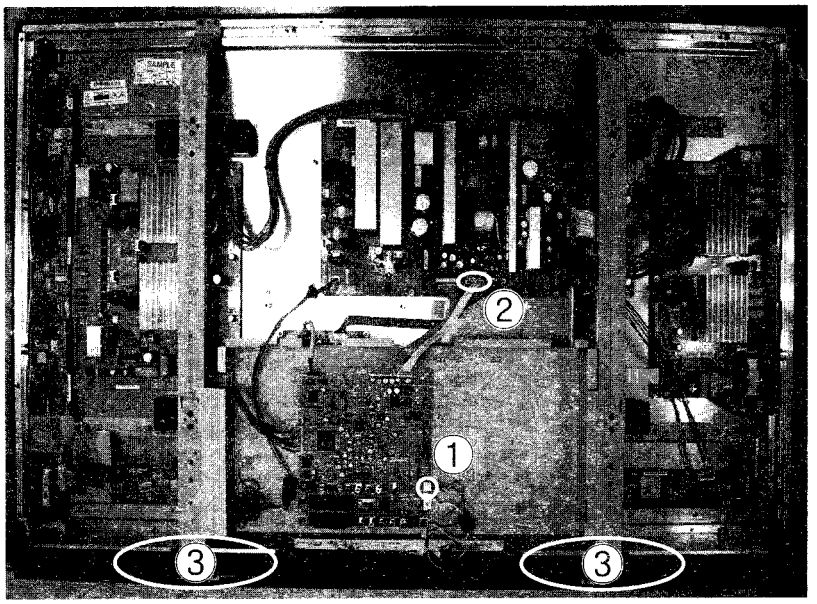
Symptom	- The SMPS relay is repeatedly turned on and off.
Major Checklist	In general, the SMPS relay repeatedly turns on and off by the protection function due to a defect on a board connected to the SMPS. - Disconnect all cables from the SMPS, operate the SMPS alone and check if the SMPS works properly and if each voltage output is correct. - If the symptom continues even when SMPS is operated alone, replace the SMPS. - If the symptom is not observed when operating the SMPS alone, find any defective ASSYs by connecting the cables one by one.
Troubleshooting Procedures	
Caution	When separating and connecting the cables such as CN809 of the Main SMPS, CN1, CN2, CN3, CN4 and CN5 of DC-DC SMPS, CN of the X Main Board, and CN of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after separating the power cord from the unit.


3
1
Does the symptom continue after connecting the power and removing CN809 cable from the Main SMPS?
No
Does the symptom continue when connecting the power after connecting the CN809 cable and removing the CN2, CN4 and CN5 cables from the DC-DC SMPS?
Yes
Replace the DC-DC SMPS
Yes
No
3
2
Does the symptom continue when separating the CN804-1 and CN803 cables from the Main SMPS and shorting pins 4 and 5 of the CN804-2 Connector?
No
Reconnect all cables. Does the symptom continue when connecting the power after the CN4 cable to the DC-DC SMPS?
Yes
Replace the X Main Board
Yes
No
3
Replace the Main SMPS
Does the symptom continue when connecting the power after CN2 to the DC-DC SMPS?
Yes
Replace the Y Main Board
No
2
Replace the Main Board
Does the symptom continue when connecting the power after removing CN810 from the Main SMPS?
No
Replace the Logic Main Board

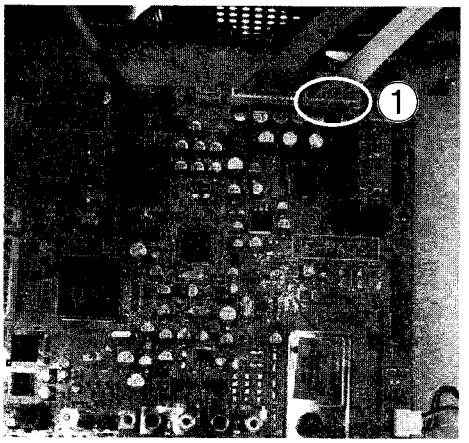
6-2-3 No Picture (When audio is normal)

Symptom	- Audio is normal but no picture is displayed on the screen.
Major Checklist	- This may happen when the Main Board is normal but the X, Y Main Board, Logic Board, or Y Buffer Boards are out of order. - The output voltage of the Main SMPS or the DC-DC SMPS is out of order. - This may happen when the LVDS cable connecting the Main Board and the Logic Board is disconnected.
Troubleshooting Procedures	 ① Are the Vs and Va voltages normal after removing the CN809 cable from the Main SMPS? — No → Replace the Main SMPS Yes ② Is the output voltage of the DC-DC SMPS normal when reconnecting the CN809 cable and removing the CN2, CN4 and CN5 cables from the DC-DC SMPS? — No → Replace the DC-DC SMPS Yes Replace the Y Main Board Replace the X Main Board Replace the Logic Main Board Replace the Y SCAN Board
Caution	When separating and connecting the cables such as CN809 of the Main SMPS, CN1, CN2, CN3, CN4 and CN5 of the DC-DC SMPS, CN of the X Main Board, and CN of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after separating the power cord from the unit.

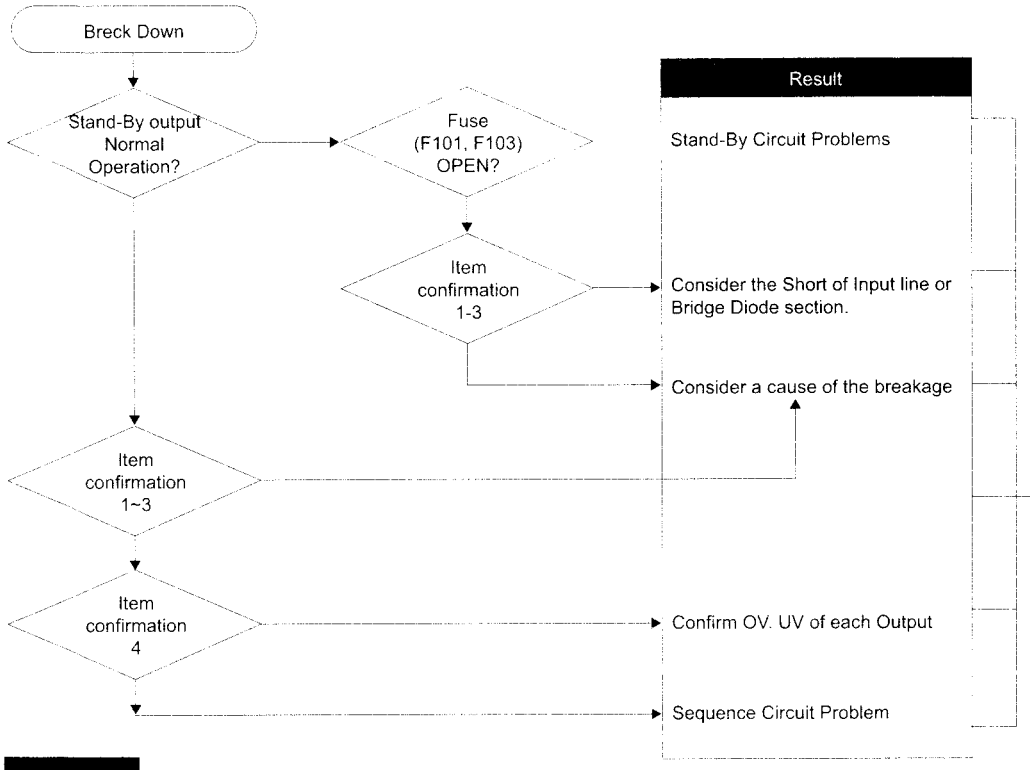
6-2-4 No Sound

Symptom	- Video is normal but there is no sound.
Major Checklist	- When the speaker connectors are disconnected or damaged. - When the sound processing part of the Main Board is out of order. - Speaker defect.
Troubleshooting Procedures	 ① Is the cable connection between the Main Board and the speaker properly connected? — No → Connect the cable properly or replace the cable, if necessary. Yes ② Is the output voltage of SMPS normal? (CN803 #5) — No → Replace the Main SMPS Yes Is the speaker output terminal of the Main Board normal? — No → Replace the Main Board Yes ③ Replace the Speaker

6-2-5 No Video

Symptom	- A normal/cable network analog broadcast screen is blank or abnormal.
Major Checklist	- Check the antenna connection settings (Antenna 1 - Normal/Cable/DTV, Antenna 2 - Only for DTV) - Check the tuner output signal (CVBS). - Check the power input of the Main board.
Troubleshooting Procedures	 Is the antenna connection setting properly configured? — No → Configure properly Yes ① Check CN101 pin2 for +33V — No → Replace the Main SMPS Yes Replace the Main Board

6-2-6 Main SMPS Troubleshooting


Breck Down
Stand-By output Normal Operation?
Fuse (F101, F103) OPEN?
Item confirmation 1-3
Item confirmation 1~3
Item confirmation 4
Result
Stand-By Circuit Problems
Consider the Short of Input line or Bridge Diode section.
Consider a cause of the breakage
Confirm OV. UV of each Output
Sequence Circuit Problem
Please return back the broken Power supply and request a service to SANKEN

ITEM

1. Is the Drain-Source of Q8201, Q8202, Q8205 shorten? → Breakage of PFC
2. Is the Drain-Source of Q8301, Q8302 shorten? → Breakage of Low Voltage circuit
3. Is the Drain-Source of Qs401 shorten? → Breakage of Va circuit.
4. CN302[5pin] is 'H' and Cn802[6pin] is 'L'? {Micom Board} → Stopped by the wrong level of output voltage

* Please return back the broken Power Supply
- It could be with difficulty finding the cause if you handle it first
- Unless you return back it when the broken Power supply has only a little damage. it could make the other problem.

6-2-7 Drive Board Troubleshooting

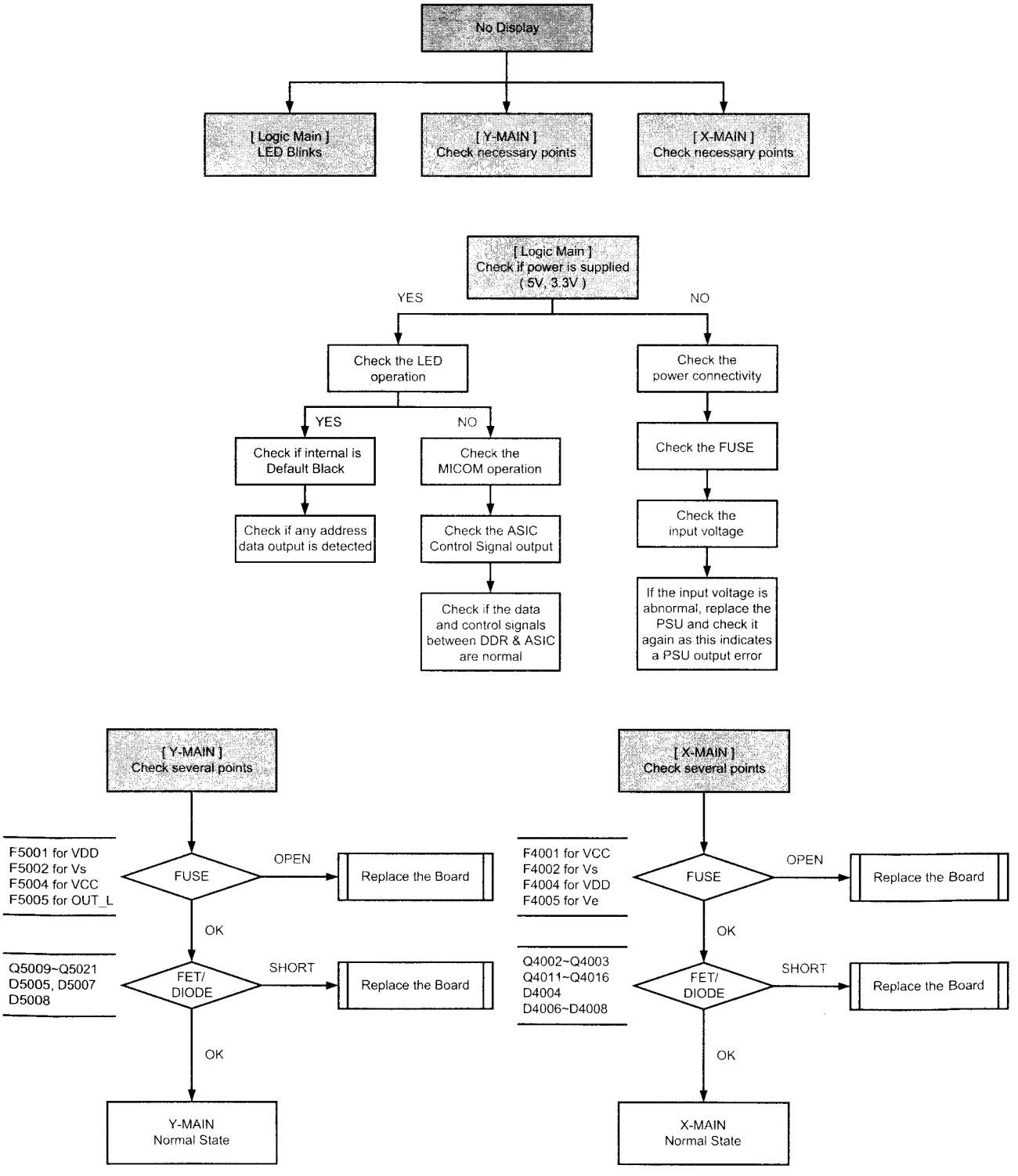
1) Troubleshooting Summary

Condition Name	Description	Related Board
No Voltage Output	Operating Voltage don't exist	PSU
No Display	Operating Voltage exist, but an Image doesn't exist on screen	Y-MAIN, X-MAIN, Logic Main, Cable
Abnormal Display	Abnormal Image (not open or short) is no screen	Y-MAIN, X-MAIN, Logic Main
Sustain Open	Some horizontal lines don't exist on screen	Scan Buffer, FPC of X/Y
Sustain Short	Some horizontal lines appear to be linked on screen	Scan Buffer, FPC of X/Y
Address Open	Some vertical lines don't exist on screen	Logic Main, Logic Buffer, TCP
Address Short	Some vertical lines appear to be linked on screen	Logic Main, Logic Buffer, TCP

2) Troubleshooting Procedure in Abnormal Conditions

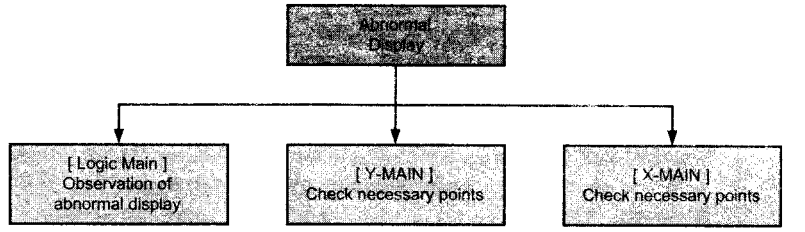
① No Display (Operating Voltage exist, but an doesn't exist on Screen)

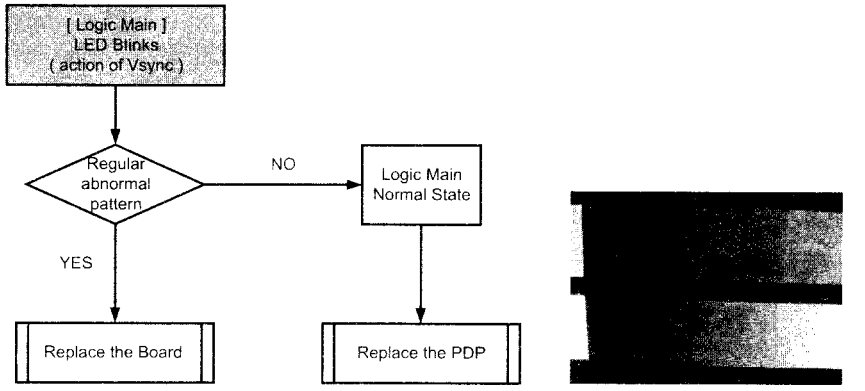
▶ No Display is related with Y-MAIN, X-MAIN, Logic Main and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.

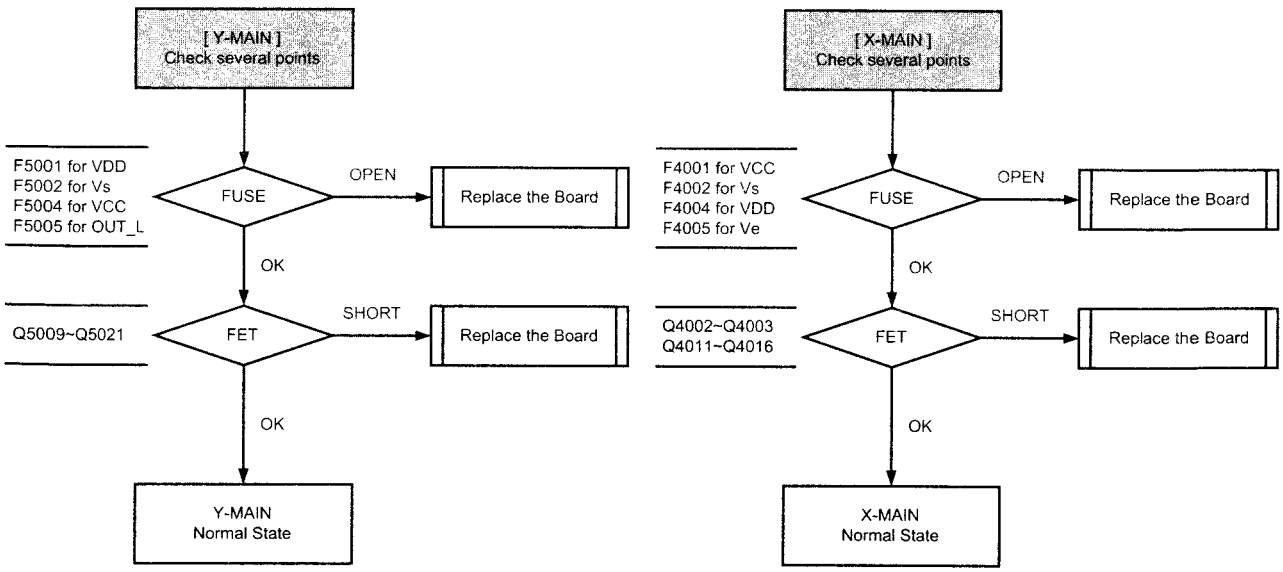


② Abnormal Display(Abnormal Image is on Screen.(except abnormality in Sustain or Address)

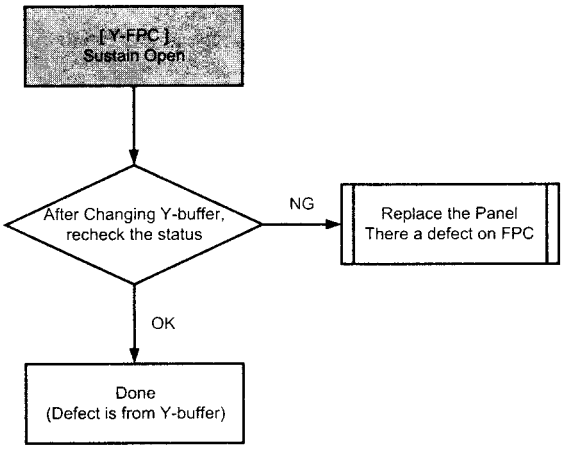
▶ Abnormal Display is related with Y-MAIN, X-MAIN, Logic Main and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.

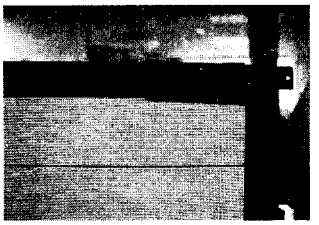




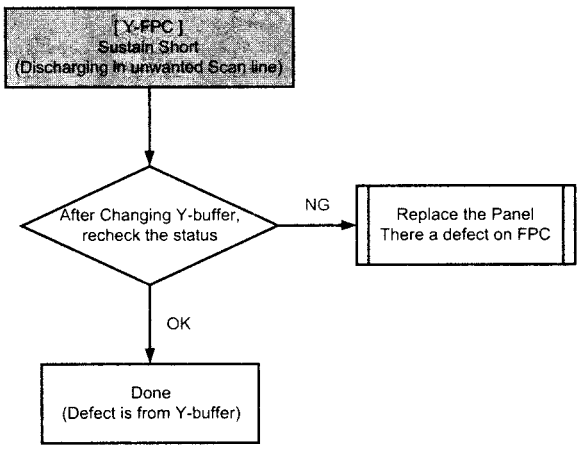


③ Sustain Open (some horizontal lines don't exist on screen)



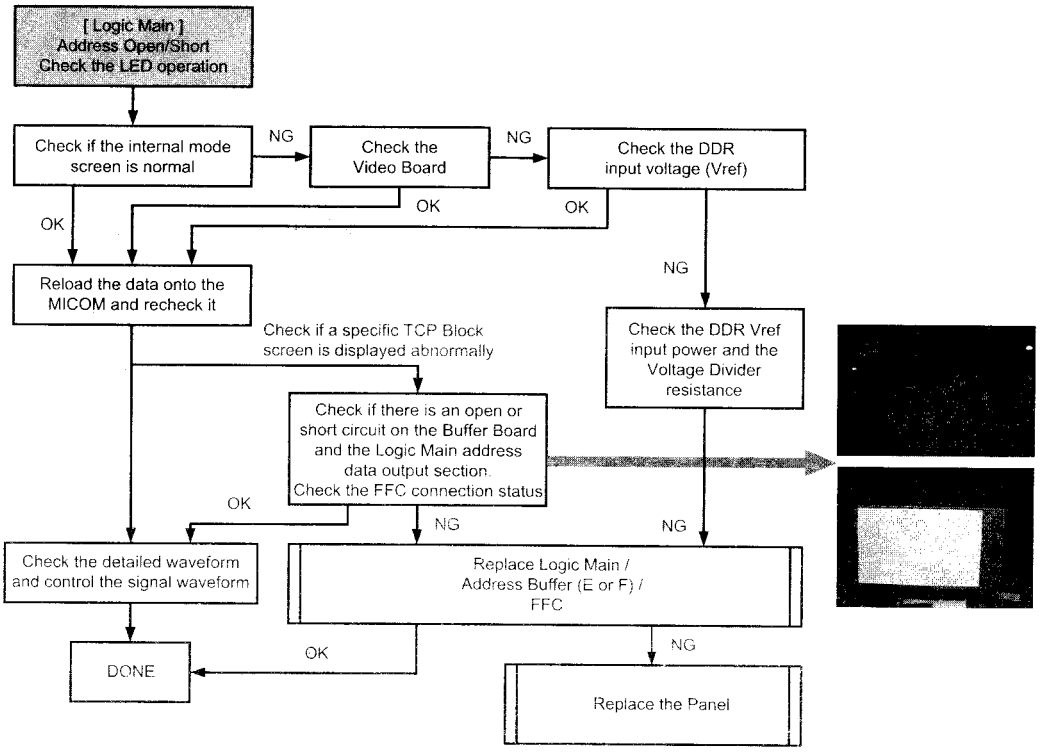


④ Sustain Short (some horizontal lines appear to be linked on Video)



⑤ Address Open, Short(some vertical lines don't exist on screen)

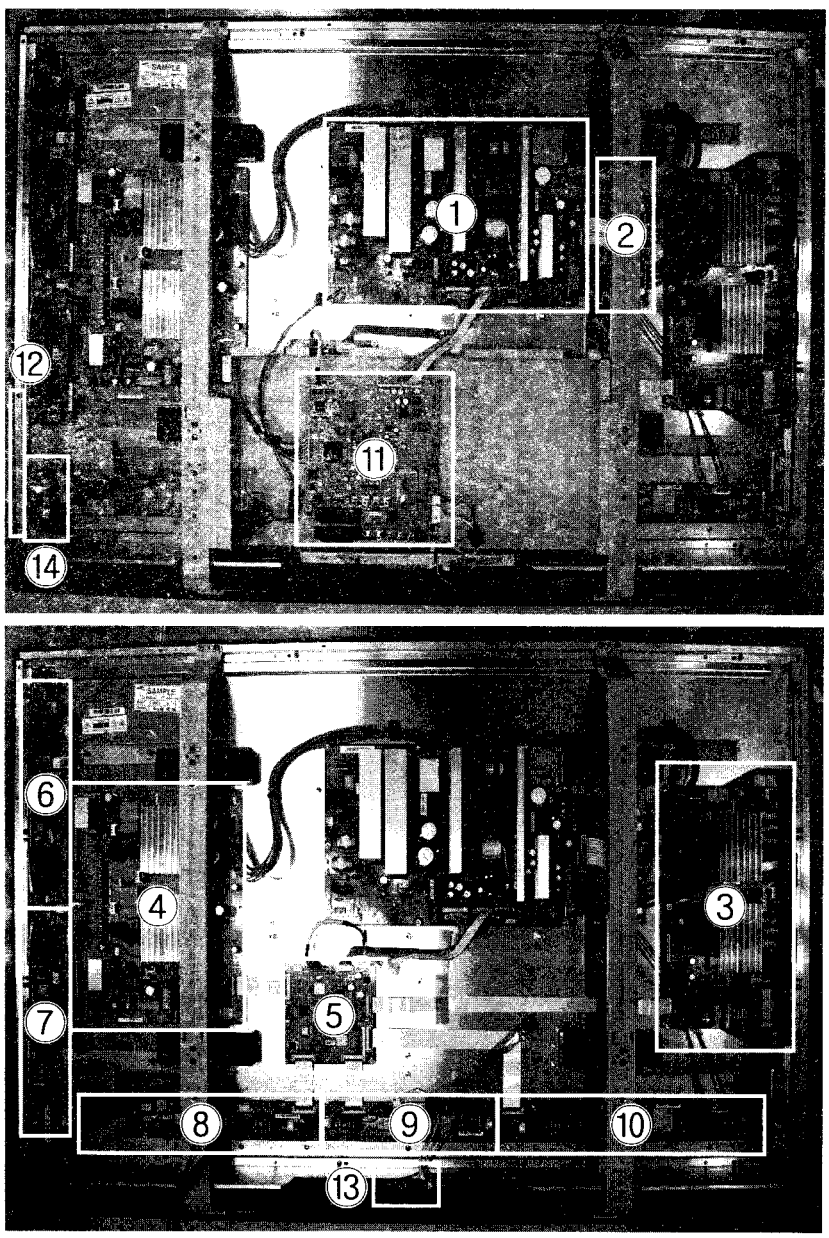
▶ Address Open and Short is related with Logic Main, Logic Buffer, FFC, TCP film and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.


[Logic Main]
Address Open/Short
Check the LED operation
Check if the internal mode screen is normal
NG
Check the Video Board
NG
Check the DDR input voltage (Vref)
OK
OK
OK
Reload the data onto the MICOM and recheck it
NG
Check if a specific TCP Block screen is displayed abnormally
Check the DDR Vref input power and the Voltage Divider resistance
Check if there is an open or short circuit on the Buffer Board and the Logic Main address data output section. Check the FFC connection status
OK
NG
NG
Check the detailed waveform and control the signal waveform
Replace Logic Main / Address Buffer (E or F) / FFC
NG
OK
DONE
Replace the Panel

6-3 Troubleshooting Procedures by ASS'Y

※ The ASS'Y code can be changed, see "5 Chapter. Electrical Part List."

No	Assy	Code No.	Description	Major Symptoms
1	ASSY PCB P-SMPS(MAIN)	BN96-03051A	Main SMPS	No power, Blank screen, the Relay repeats On and Off.
2	ASSY PCB P-SMPS(DC-DC)	BN96-01856A	DC-DC SMPS	Blank screen, the Relay repeats On and Off.
3	ASSY PDP P-X MAIN BOARD	BN96-03359A	X Main Board	Blank screen
4	ASSY PDP P-Y MAIN BOARD	BN96-03360A	Y Main Board	Blank screen
5	ASSY PDP MODULE P-LOGIC MAIN BOARD	BN96-03366A	Logic Board	Blank screen, Screen noise
6	ASSY PDP P-Y UPPER SCAN BOARD	BN96-03361A	Y Upper Scan Board	Row Bar screen is blank
7	ASSY PDP P-Y LOWER SCAN BOARD	BN96-03362A	Y Lower Scan Board	Row Bar screen is blank
8	ASSY PDP P-ADDRESS E BUFF BOARD	BN96-03363A	Address E Buffer Board	Corresponding Buffer Board block screen is blank.
9	ASSY PDP P-ADDRESS F BUFF BOARD	BN96-03364A	Address F Buffer Board	Corresponding Buffer Board block screen is blank.
10	ASSY PDP P-ADDRESS G BUFF BOARD	BN96-03365A	Address G Buffer Board	Corresponding Buffer Board block screen is blank.
11	ASSY PCB MISC-MAIN	BN94-00958A	Main Board	No Power, Abnormal screen for each input source, PIP screen trouble, Sound trouble
12	ASSY BOARD P-FUNCTION	BN96-02784B	Function Key Board	The side function key does not work properly
13	ASSY BOARD P-POWER&IR	BN96-03320A	Power Button Board	The remote control does not work properly, the LED does not work properly.
14	ASSY BOARD P-SIDE AV	BN96-03075G	Side AV Board	The AV2 and S-VIDEO2 modes do not work properly



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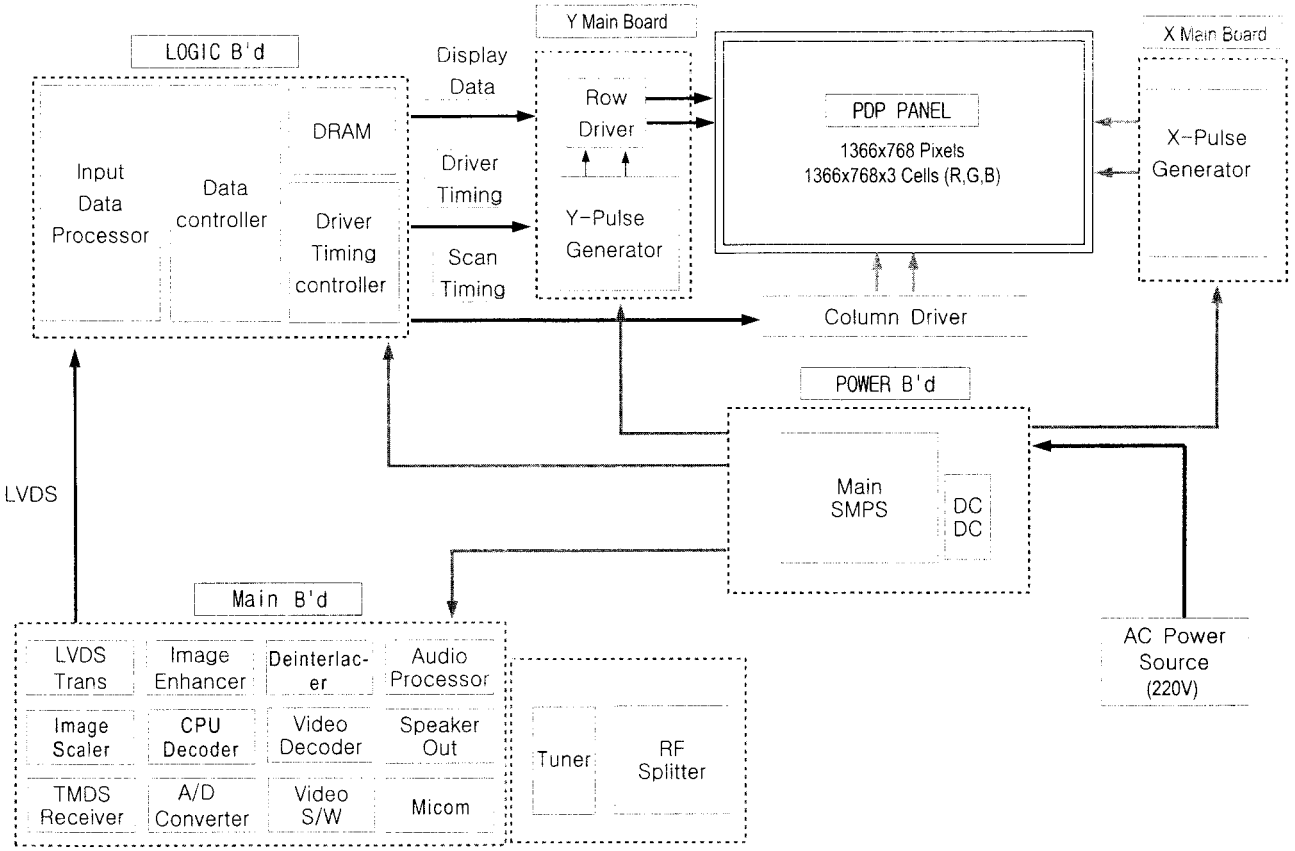
7. Block Diagram

7-1 Overall Block Diagram



CN804-1(Main SMPS) ↔ CN102(Main B'D)	
Pin No.	Signal
1	D5.3V
2	RTN
3	VCS
4	VCA
5	RTN
6	RTN
7	D12V
8	PS_ON
9	RTN
10	STB-5V
11	FAN_ON
12	FAN_D

CN803(Main SMPS) ↔ CN101(Main B'D)	
Pin No.	Signal
1	6.5V
2	RTN
3	A12V
4	RTN
5	18V-AMP
6	18V-AMP
7	RTN-AMP
8	RTN-AMP
9	VT
10	RTN

CN810(Main SMPS) ↔ CN2005(Logic B'D)	
Pin No.	Signal
1	D5.3V
2	D5.3V
3	RTN
4	RTN
5	D5.3V
6	RTN
7	PS_ON
8	N.C
9	VS_ON
10	STB-5V

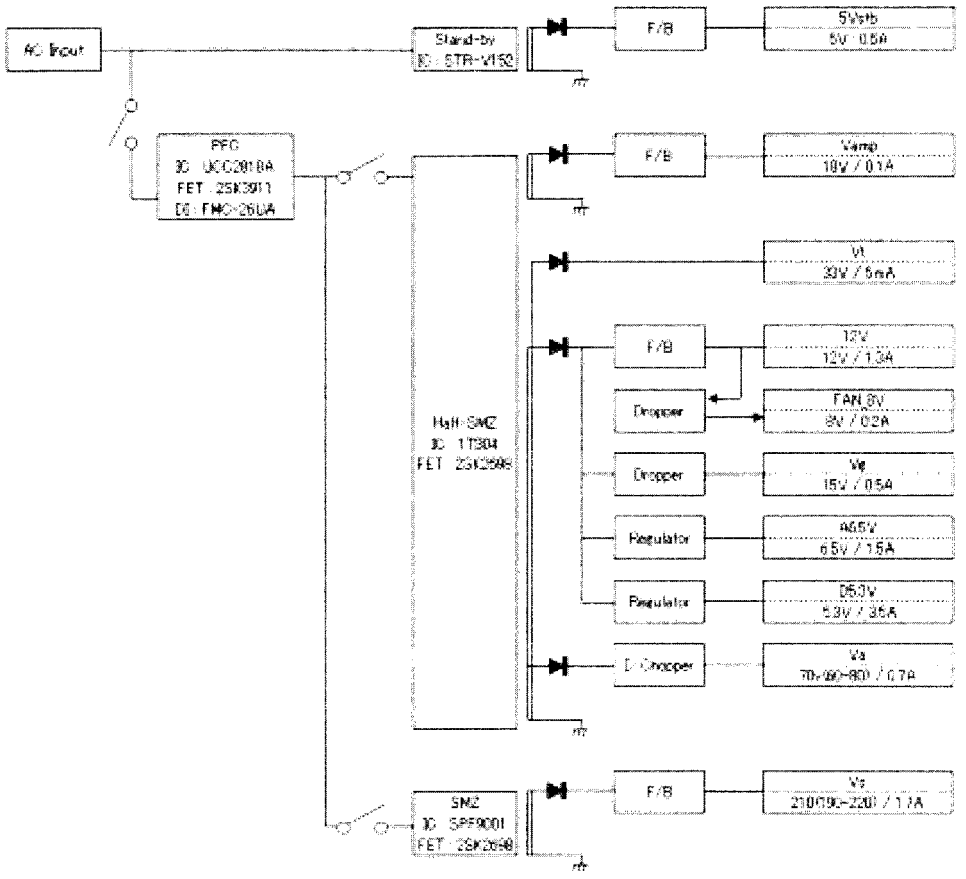
CN2(DC-DC SMPS) ↔ CN5007(Y B'D)	
Pin No.	Signal
1	D5.3V
2	Vg
3	RTN
4	Vscan
5	RTN
6	Vset
7	RTN
8	RTN
9	Vs
10	Vs

CN4(DC-DC SMPS) ↔ CN4000(X B'D)	
Pin No.	Signal
1	D5.3V
2	Vg
3	RTN
4	RTN
5	Ve
6	RTN
7	RTN
8	Vs
9	Vs

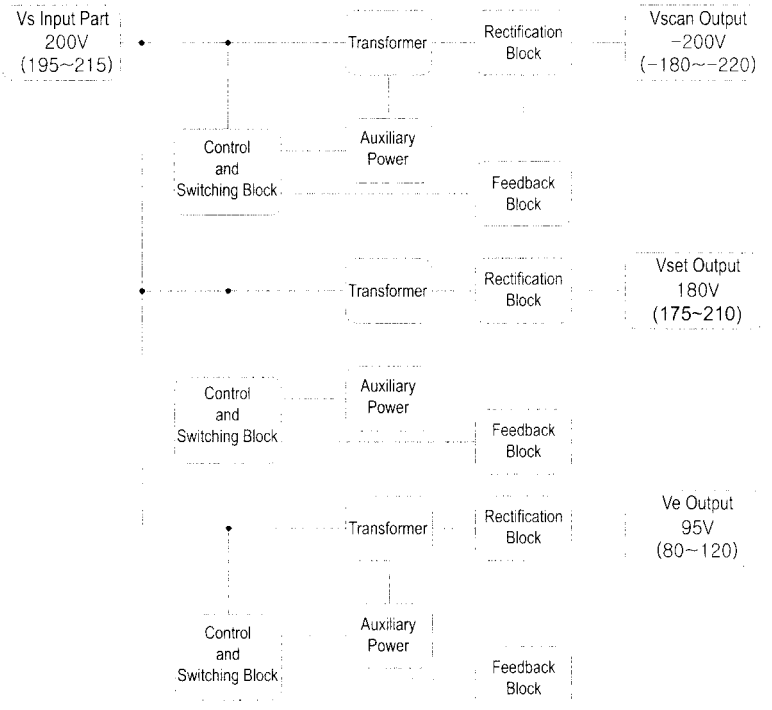
CN5(DC-DC SMPS) ↔ CN2710(F-Buffer)	
Pin No.	Signal
1	RTN
2	N.C
3	D5.3V
4	N.C
5	Va

7-2 Partial Block Diagram

7-2-1 Main SMPS Block Diagram

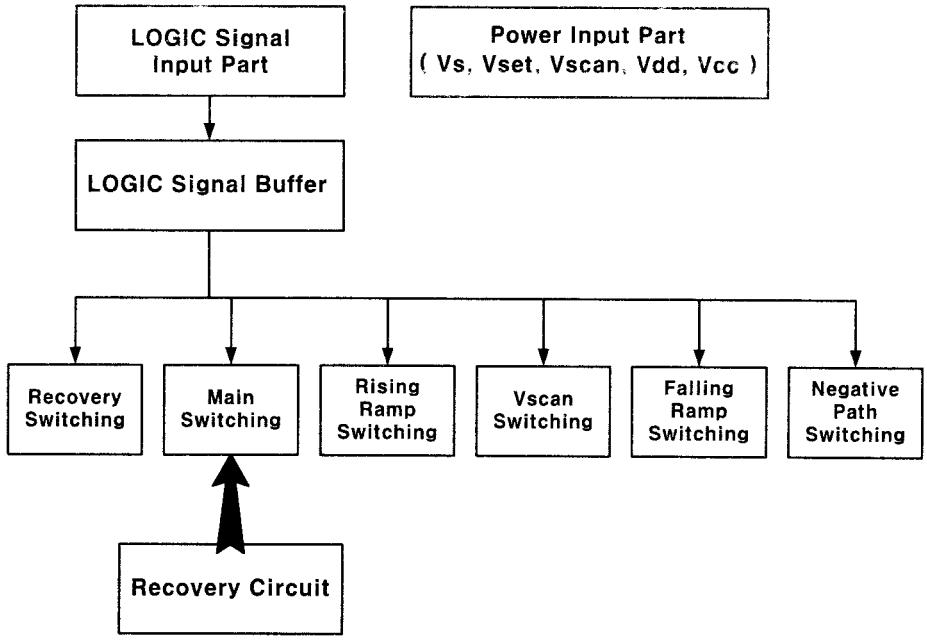


7-2-2 DC-DC SMPS Block Diagram

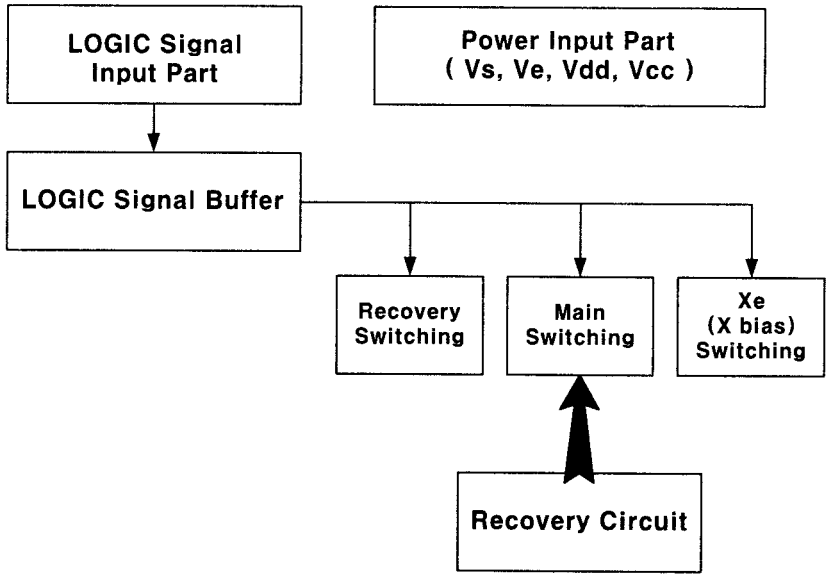


7-2-3 Module Driver Board Block Diagram

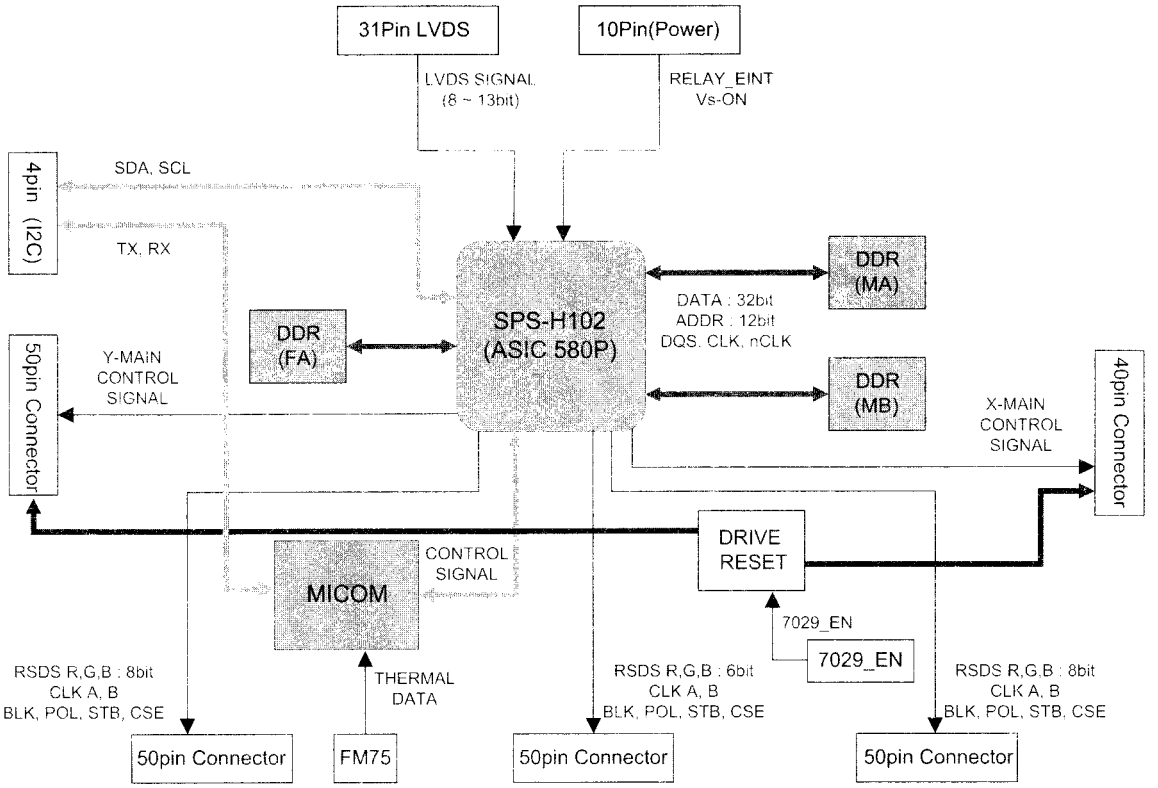
1. Y Main Board



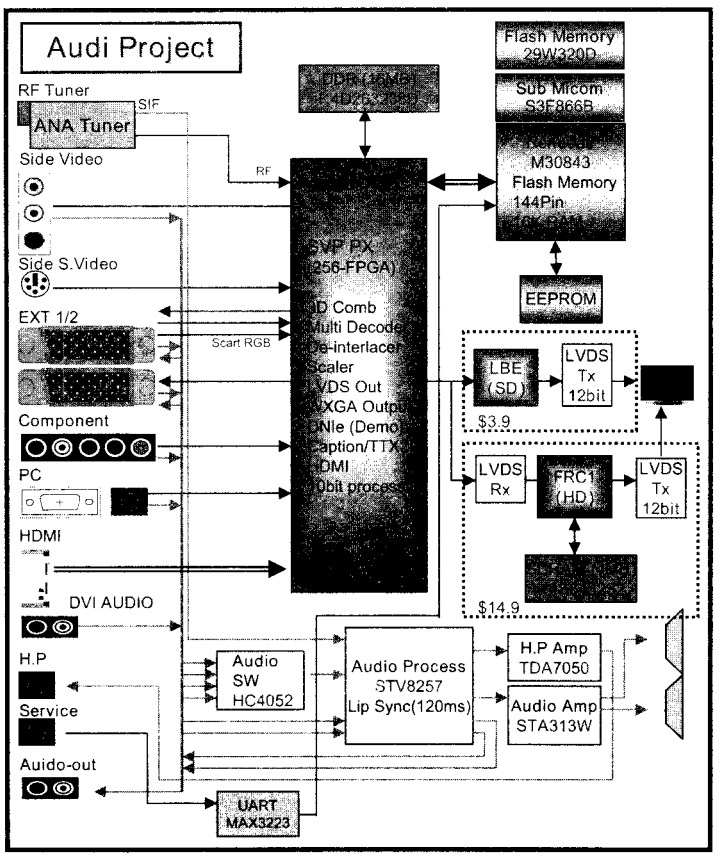
2. X Main Board



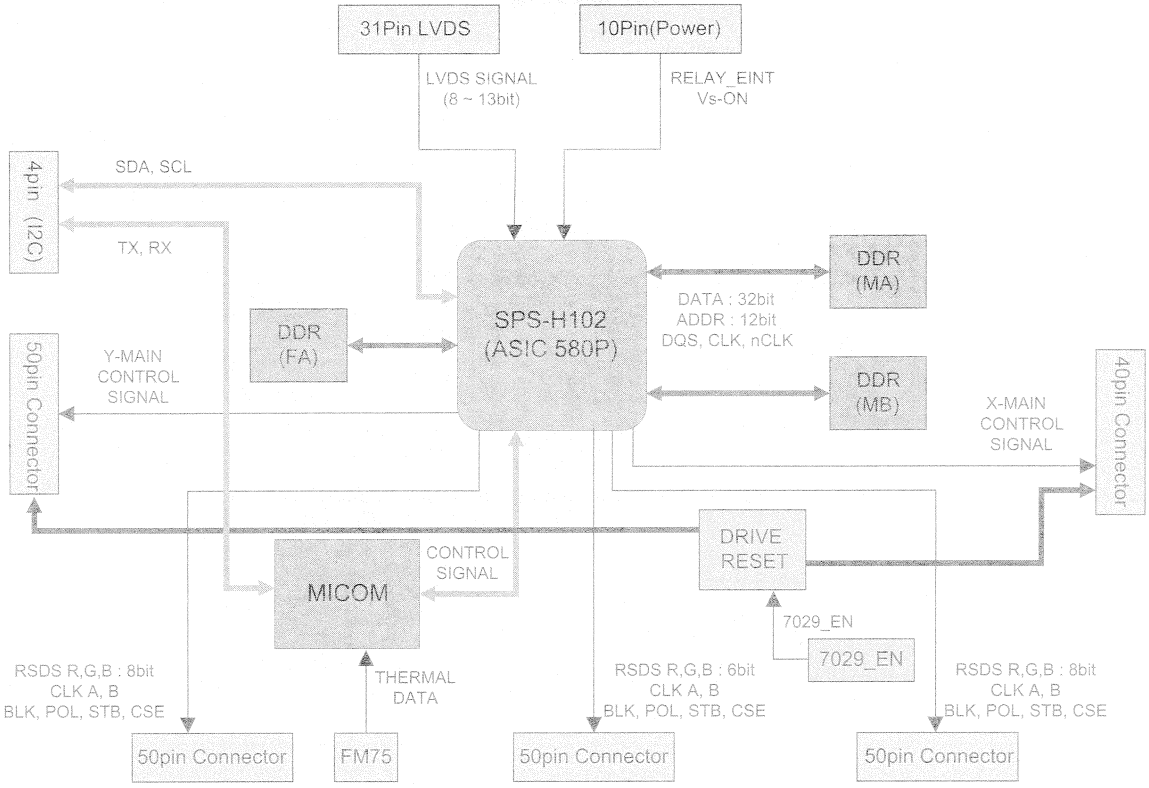
7-2-4 Logic Board Block Diagram



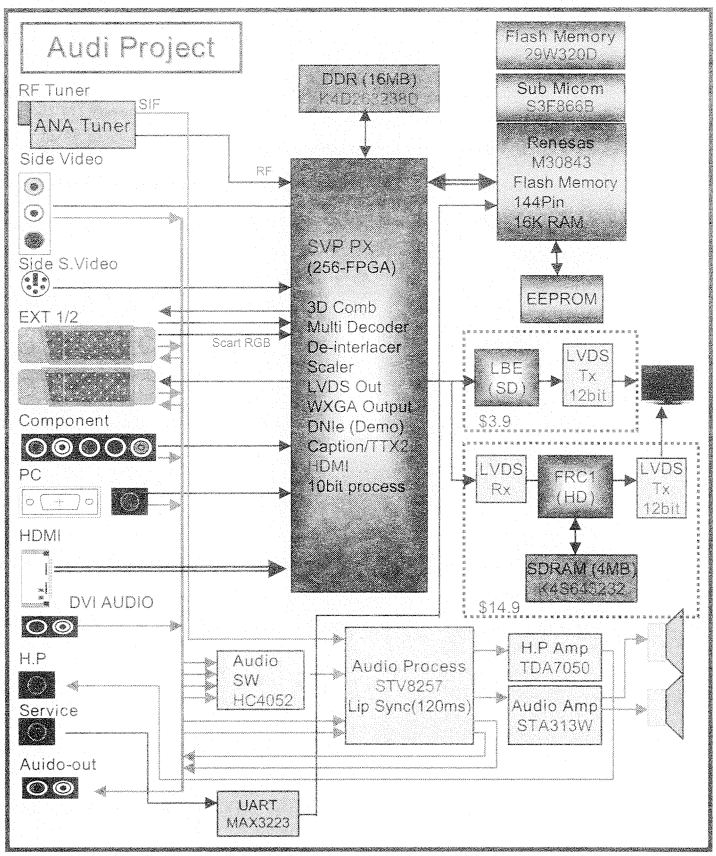
7-2-5 Main Board Block Diagram



7-2-4 Logic Board Block Diagram



7-2-5 Main Board Block Diagram



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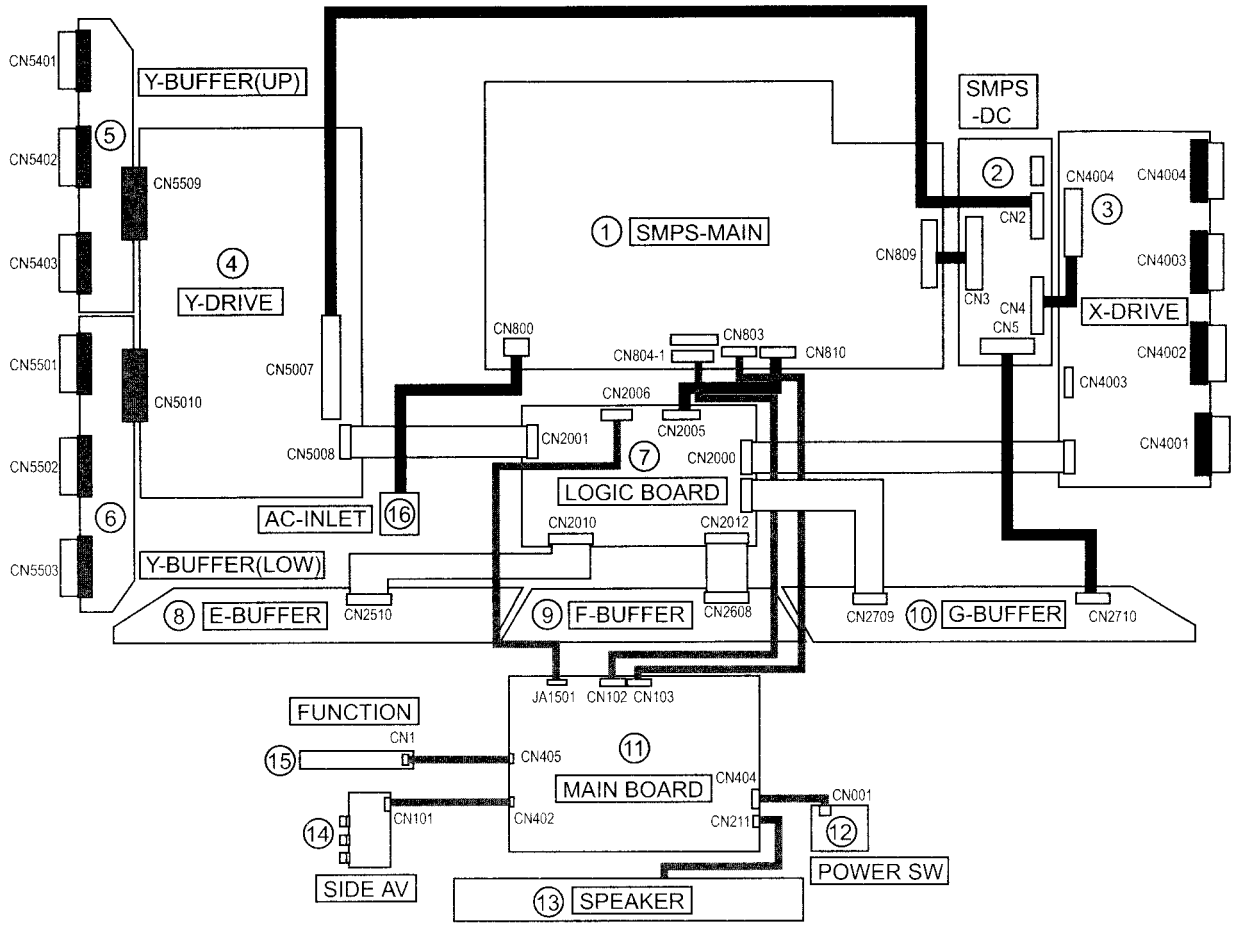
8. Wiring Diagram

8-1 Overall Wiring

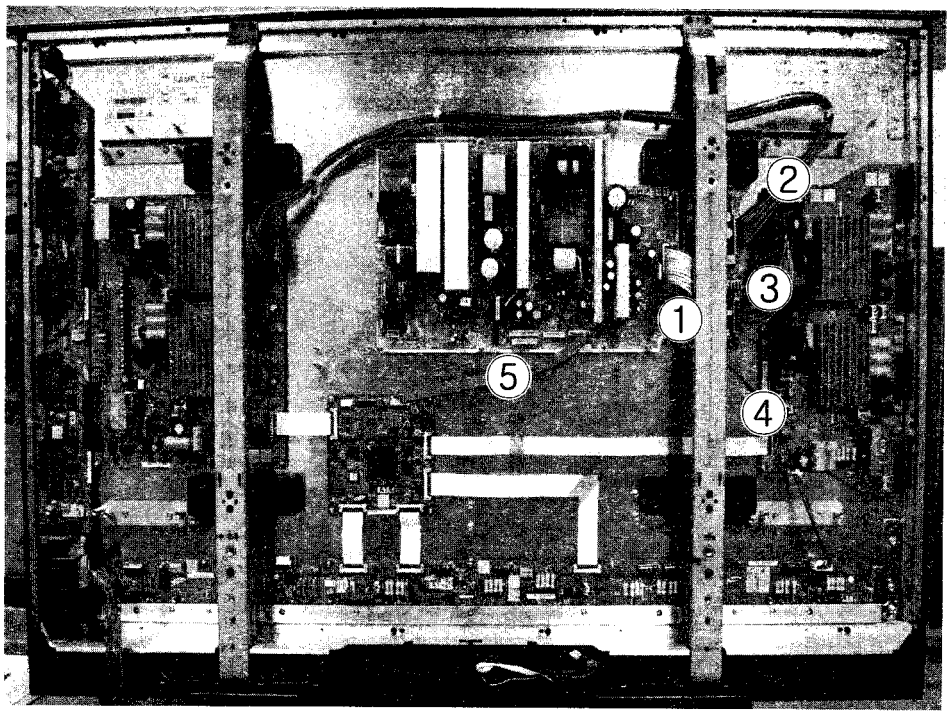
※ The ASS'Y code can be changed, see "5 Chapter. Electrical Part List."



No	Assy	Code No.	Description
-	ASSY PDP MODULE P	BN96-03290A	M1,50HD,V5.1,1366*768,NTSC/PAL,complementary color,with logic
①	ASSY PCB P-SMPS	BN96-03051A	HPS5053,Free Voltage,245*395
②	ASSY PCB P-SMPS	BN96-01856A	SPD-50P5HD(DC_DC),200Vin(DC_DC)
③	ASSY PDP MODULE P-X MAIN BOARD	BN96-03359A	50HD,PL50HW006A,V5.1,1366*768,NTSC/PAL,LJ92-01388A
④	ASSY PDP MODULE P-Y MAIN BOARD	BN96-03360A	50HD,PL50HW006A,V5.1,1366*768,NTSC/PAL,LJ92-01381A
⑤	ASSY PDP MODULE P-Y MAIN UPPER SCAN	BN96-03361A	50HD,PL50HW006A,V5.1,1366*768,NTSC/PAL,LJ92-01383A
⑥	ASSY PDP MODULE P-Y MAIN LOWER SCAN	BN96-03362A	50HD,PL50HW006A,V5.1,1366*768,NTSC/PAL,LJ92-01384A
⑦	ASSY PDP MODULE P-LOGIC MAIN BOARD	BN96-03366A	50HD,PL50HW006A,V5.1,1366*768,NTSC/PAL,sec/sesk,LJ92-
⑧	ASSY PDP P-ADDRESS E BUFFER	BN96-03363A	50HD,PL50HW006A,V5.1,1366*768,NTSC/PAL,LJ92-01372A
⑨	ASSY PDP P-ADDRESS F BUFFER	BN96-03364A	50HD,PL50HW006A,V5.1,1366*768,NTSC/PAL,LJ92-01373A
⑩	ASSY PDP P-ADDRESS G BUFFER	BN96-03365A	50HD,PL50HW006A,V5.1,1366*768,NTSC/PAL,LJ92-01374A
⑪	ASSY PCB MISC-MAIN	BN94-00958A	PS50Q7HX/XEC,D74A
⑫	ASSY BOARD P-POWER&IR	BN96-03320A	CADILLAC,SJ05-01-516,POWER & IR,CORE, 250MM
⑬	ASSY SPEAKER P	BN96-02785A	8ohm,Twister,42inch,10W
⑭	ASSY BOARD P-SIDE AV	BN96-03075G	AUDI,SJ06-01-004G,SIDE-AV,500MM
⑮	ASSY BOARD P-FUNCTION	BN96-02784B	CADILLAC,SJ06-01-006,FUNCTION,600MM, CORE
⑯	FILTER-EMI AC LINE	2901-001340	250V,6A,-,-,50x22.5x37.2mm,BK,AE

8-2 Partial Wiring

8-2-1 PDP Module ↔ SMPS Wiring



① CN809(Main SMPS) ↔ CN3(DC-DC SMPS)	
Pin No.	Signal
1	D5.3V
2	Vg
3	RTN
4	RTN
5	RTN
6	RTN
7	RTN
8	Va
9	Va
10	N.C
11	Vs
12	Vs

② CN2(DC-DC SMPS) ↔ CN5007(Y B'D)	
Pin No.	Signal
1	D5.3V
2	Vg
3	RTN
4	Vscan
5	RTN
6	Vset
7	RTN
8	RTN
9	Vs
10	Vs

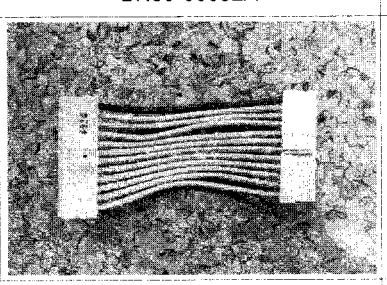
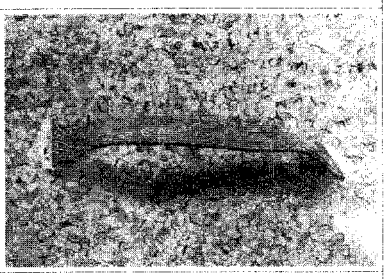
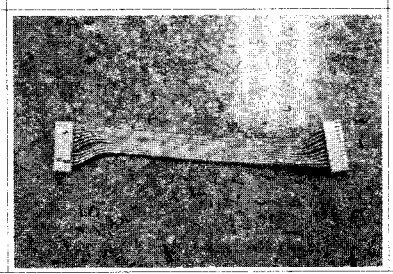
③ CN4(DC-DC SMPS) ↔ CN4000(X B'D)	
Pin No.	Signal
1	D5.3V
2	Vg
3	RTN
4	RTN
5	Ve
6	RTN
7	RTN
8	Vs
9	Vs

④ CN5(DC-DC SMPS) ↔ CN2710(F-Buffer)	
Pin No.	Signal
1	RTN
2	N.C
3	D5.3V
4	N.C
5	Va

⑤ CN809(Main SMPS) ↔ CN2005(Logic B'D)	
Pin No.	Signal
1	STD 5V
2	Vs-ON
3	N.C
4	PS-ON
5	RTN
6	D5.3V
7	RTN
8	RTN
9	D5.3V
10	D5.3V

8-2-2 Connect Cables

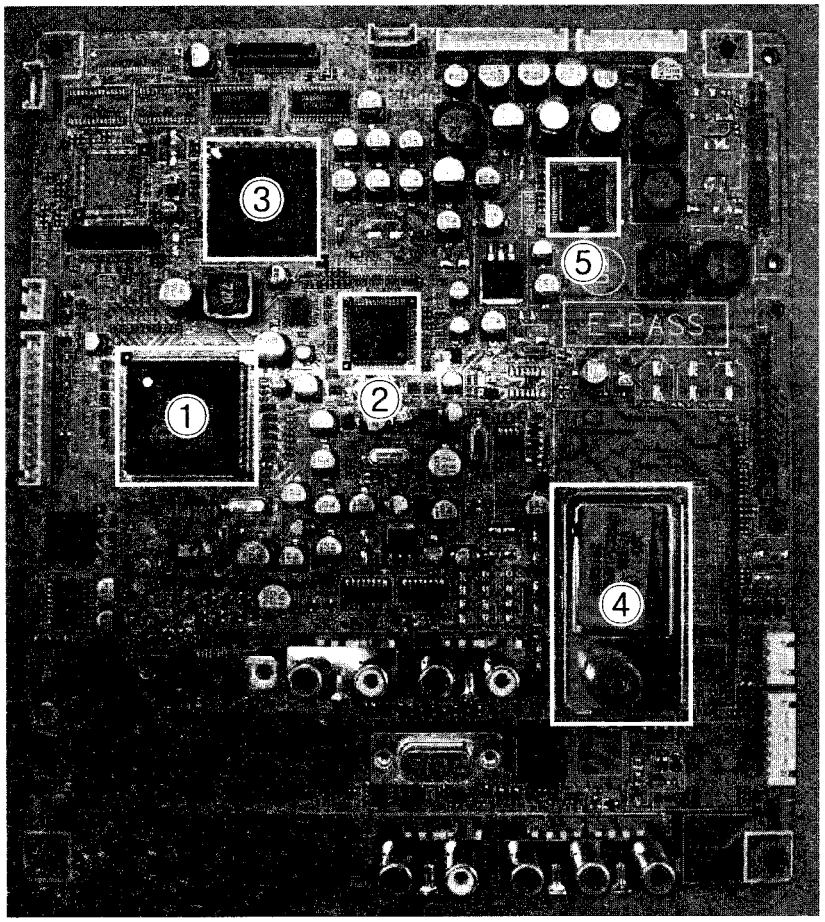
※ The code number of cable(Lead-connector) can be changed, see "5 Chapter. Electrical Part List."

Use	SMPS 12P	LVDS 31P	POWER 10P
Code	BN39-00632A	BN39-00477A	BP39-00053E
Photo			
Use	POWER 12P		
Code	MD39-00074G		
Photo			

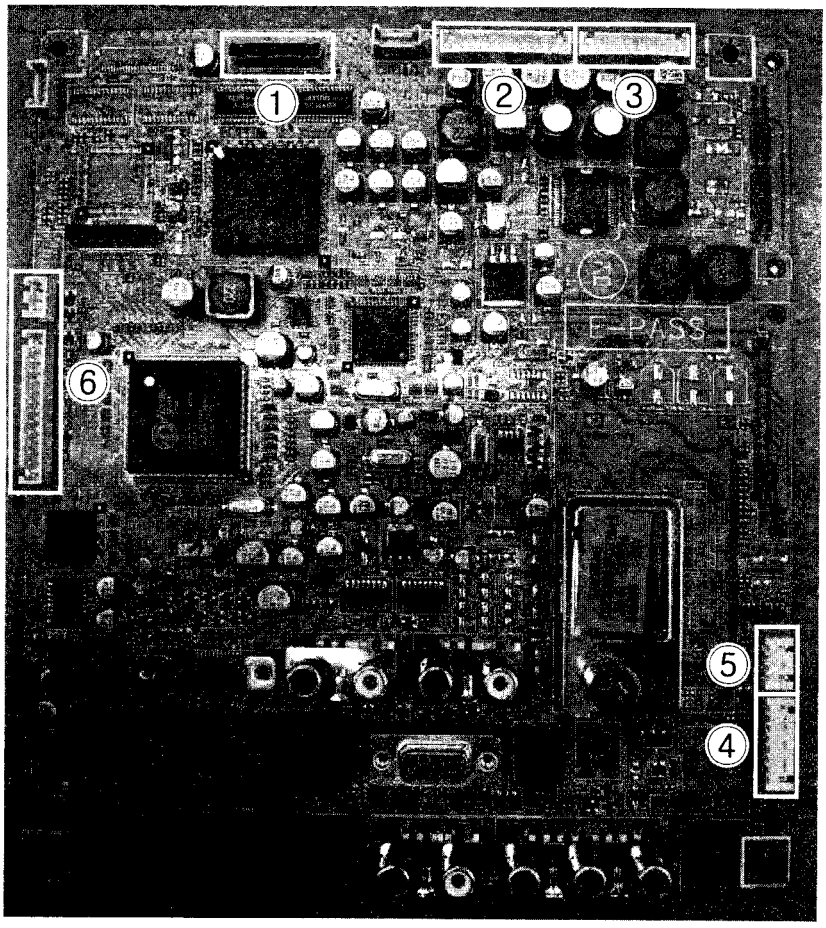
MEMO

9. PCB Diagram

9-1 Main Board



No	Name	Function	Description
①	SVP-PX	Scaler IC Controller	SVPTMPX contains dual-purposed triple 10-bit high-precision and high speed video ADCs for both PC and video inputs, the high speed HDMI could support all HDMI inputs up to 135MHz with HDCP format, the highperformance multi-format 3D digital comb video decoder that supports NTSC, PAL, and SECAM*, a HDTV sync separator, motion adaptive de-interlacing engine, and the video format conversion engine, supporting multi-window display in many different output modes.
②	M30840SGP	IC MICOM	With a 16-Mbyte address space, this microcomputer combines advanced instruction manipulation capabilities to process complex instructions by less bytes and execute instructions at higher speed.
③	FBE	IC DNIe	Image enhancement IC
④	TCPW3001PD32S(H)	TUNER	Tuner CH Tuning
⑤	STA323W	IC AUDIO-AMP	Audio power amplifiers



① CN2013(Logic B'd) ↔ CN902(Main Board)					
Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	GND	12	TXOUT2+	23	TXOUT0B-
2	GND	13	GND	24	TXOUT0B+
3	TXOUT-	14	GND	25	
4	TXOUT+	15	TXOUTCLK-	26	GND
5	GND	16	TXCLKOUT+	27	SCL_G
6	GND	17		28	GND
7	TXOUT-	18		29	SDA_G
8	TXOUT+	19	TXOUT3-	30	GND
9		20	TXOUT3+	31	
10		21		32	GND
11	TXOUT2-	22		33	GND

② CN804-1(Main SMPS) ↔ CN102(Main Board)	
Pin No.	Signal
1	5.3V
2	RTN
3	N/C
4	N/C
5	RTN
6	RTN
7	12V
8	PS_ON
9	RTN
10	STBY
11	FAN_ON
12	FAN_D

③ CN803(Main SMPS) ↔ CN101(Main Board)	
Pin No.	Signal
1	6.5V
2	RTN
3	12V
4	RTN
5	18Vamp
6	18Vamp
7	RTN_amp
8	RTN_amp
9	Vt
10	RTN

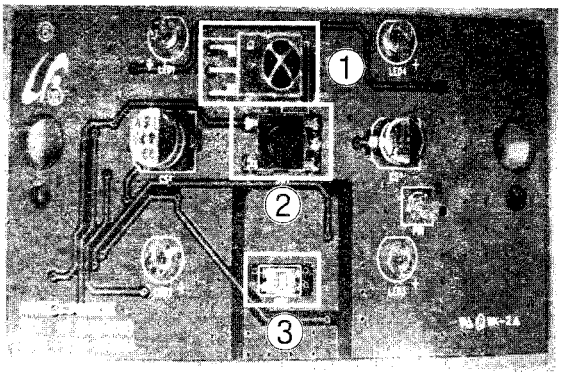
④ CN740(Main Board) ↔ CN001(Power Button)	
Pin No.	Signal
1	GND
2	LED
3	ST5V
4	GND
5	KEY_INPUT2
6	
7	
8	IR_7414

⑤ CN501(Main Board) ↔ Speaker Out	
Pin No.	Signal
1	SPK_R+
2	SPK_R-
3	SPK_L+
4	SPK_L-

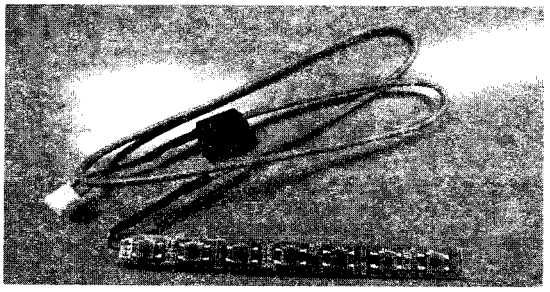
⑥ CN741(Main Board) ↔ CN1(Function Board)	
Pin No.	Signal
1	KEY_INPUT1
2	KEY_INPUT2
3	GND

9-2 Power & IR Board

No	Loc. No.	Description
①	RM1	Remote Control Sensor
②	SW1	Power Button
③	OP1	The Illumination sensor that senses the quantity of light. It senses the illumination and automatically adjusts the screen brightness according to the surrounding brightness when the Power Saving Mode of the User menu is set to Auto.



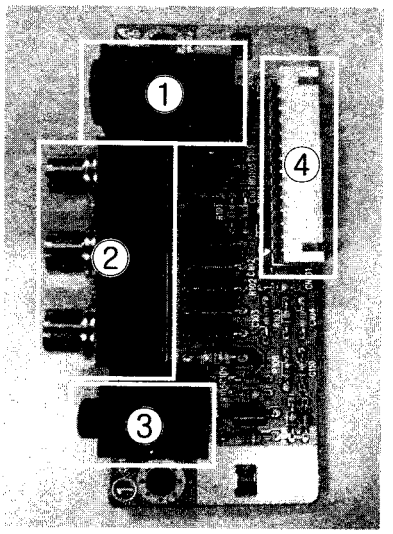
9-3 Function Board



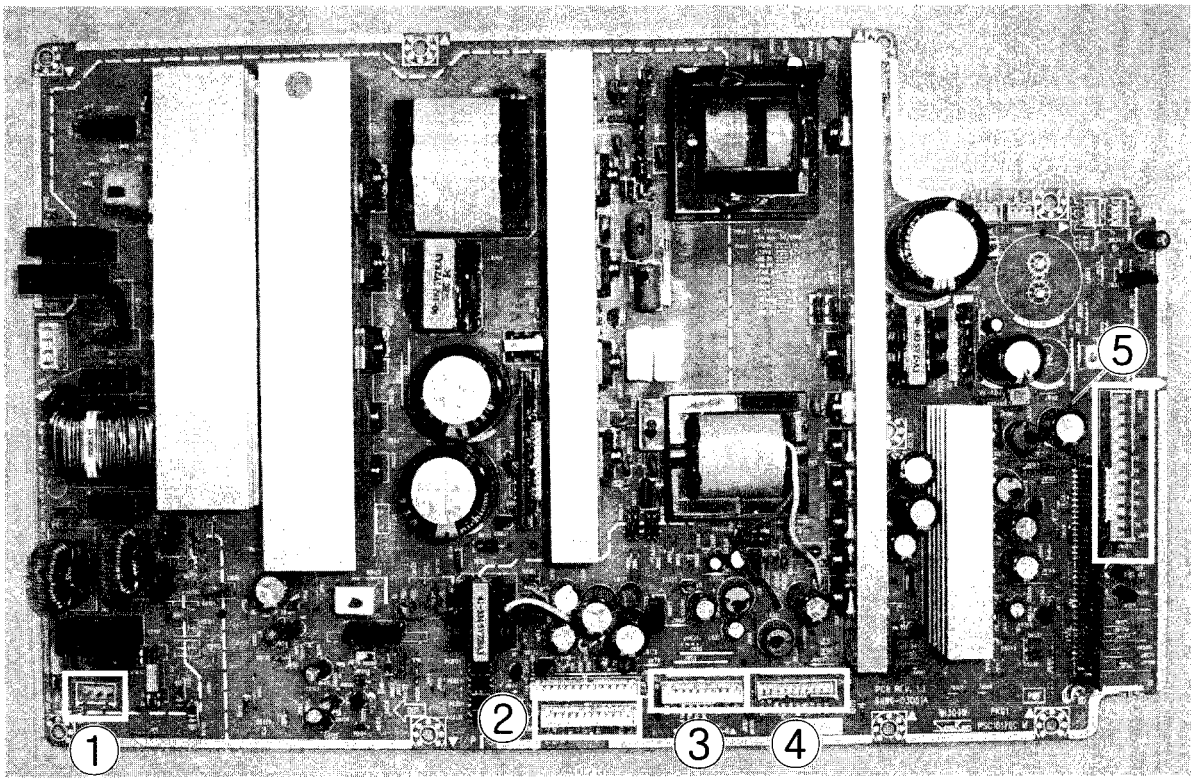
Function Key. Located on the side of the unit.

9-4 Side AV Board

No	Loc. No.	Description
①	CN102	S-VIDEO2 Input Jack
②	CN103	AV2 Input Jack
③	CN104	Earphone Jack
④	CN105	Side AV Connector



9-5 Main SMPS Board



① CN800 : AC IN (220V)

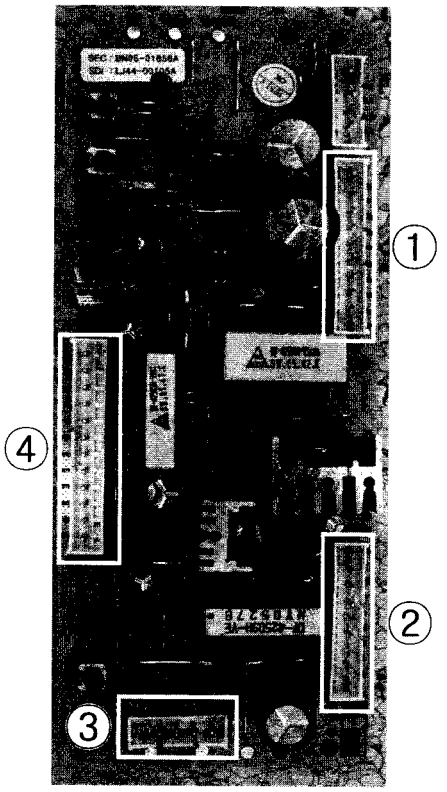
② CN804-1(Main SMPS) ↔ CN102(Main B'D)	
Pin No.	Signal
1	D5.3V
2	RTN
3	VCS
4	VCA
5	RTN
6	RTN
7	D12V
8	PS_ON
9	RTN
10	STB-5V
11	FAN_ON
12	FAN_D

③ CN803(Main SMPS) ↔ CN101(Main B'D)	
Pin No.	Signal
1	6.5V
2	RTN
3	A12V
4	RTN
5	18V-AMP
6	18V-AMP
7	RTN-AMP
8	RTN-AMP
9	VT
10	RTN

④ CN810(Main SMPS) ↔ CN2005(Logic B'D)	
Pin No.	Signal
1	D5.3V
2	D5.3V
3	RTN
4	RTN
5	D5.3V
6	RTN
7	PS_ON
8	N.C
9	VS_ON
10	STB-5V

⑤ CN809(Main SMPS) ↔ CN3(DC-DC SMPS)	
Pin No.	Signal
1	D5.3V
2	Vg
3	RTN
4	RTN
5	RTN
6	RTN
7	RTN
8	Va
9	Va
10	N.C
11	Vs
12	Vs

9-6 DC-DC SMPS Board



① CN2(DC-DC SMPS) ↔ CN5010(Y B'D)	
Pin No.	Signal
1	Vs
2	Vs
3	RTN
4	RTN
5	Vset
6	RTN
7	Vscan
8	RTN
9	Vg
10	D5.3V

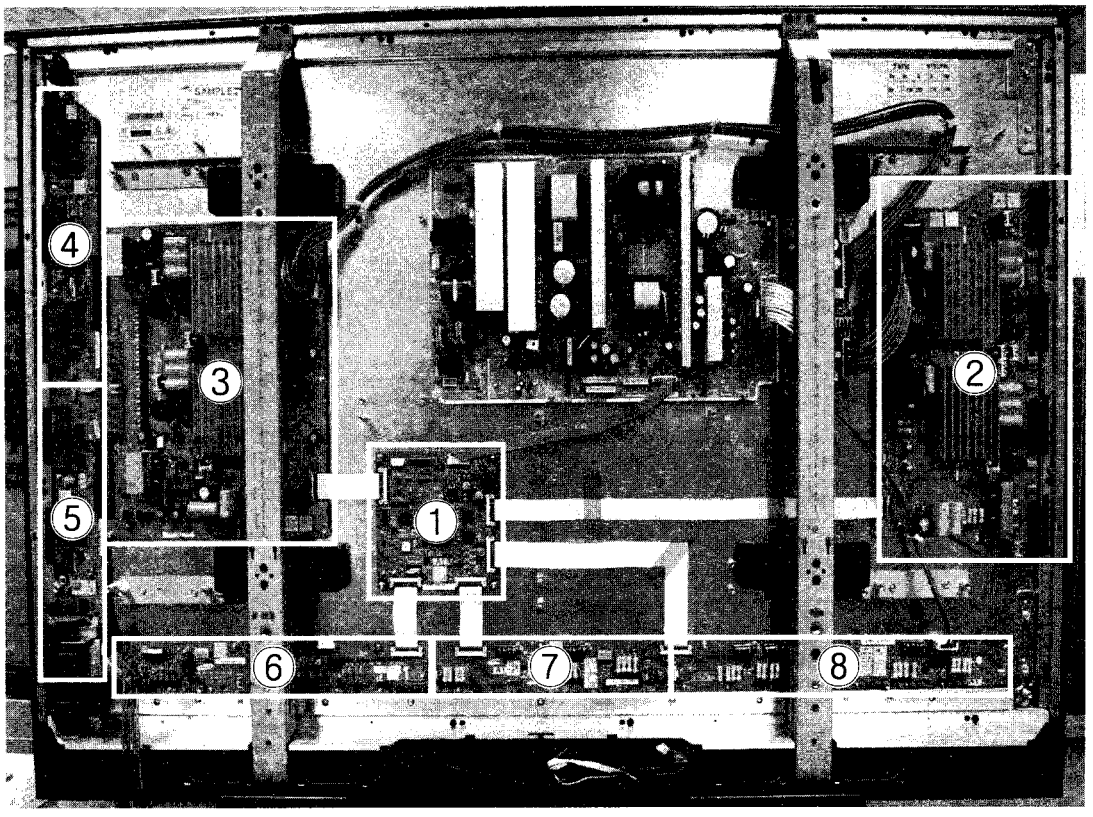
② CN4(DC-DC SMPS) ↔ CN4004(X B'D)	
Pin No.	Signal
1	Vs
2	Vs
3	RTN
4	RTN
5	Ve
6	RTN
7	RTN
8	Vg
9	D5.3V

③ CN5(DC-DC SMPS) ↔ CN2710(F-Buffer)	
Pin No.	Signal
1	RTN
2	N.C
3	D5.3V
4	N.C
5	Va

④ CN3(DC-DC SMPS) ↔ CN809(Main SMPS)	
Pin No.	Signal
1	D5.3V
2	Vg
3	RTN
4	RTN
5	RTN
6	RTN
7	RTN
8	Va
9	Va
10	N.C
11	Vs
12	Vs

9-7 PDP Module

※ The ASS'Y code can be changed, see "5 Chapter. Electrical Part List."



No	Assy	Code No.	Description
①	ASSY PDP MODULE P-LOGIC MAIN BOARD	BN96-03366A	Logic Main Board
②	ASSY PDP MODULE P-X MAIN BOARD	BN96-03359A	X Drive Board
③	ASSY PDP MODULE P-Y MAIN BOARD	BN96-03360A	Y Drive Board
④	ASSY PDP MODULE P-Y MAIN UPPER SCAN	BN96-03361A	Y Upper Scan Board
⑤	ASSY PDP MODULE P-Y MAIN LOWER SCAN	BN96-03362A	Y Lower Scan Board
⑥	ASSY PDP MODULE P-ADDRESS E BUFFER	BN96-03363A	Address E Buffer Board
⑦	ASSY PDP MODULE P-ADDRESS F BUFFER	BN96-03364A	Address F Buffer Board
⑧	ASSY PDP MODULE P-ADDRESS G BUFFER	BN96-03365A	Address G Buffer Board

MEMO

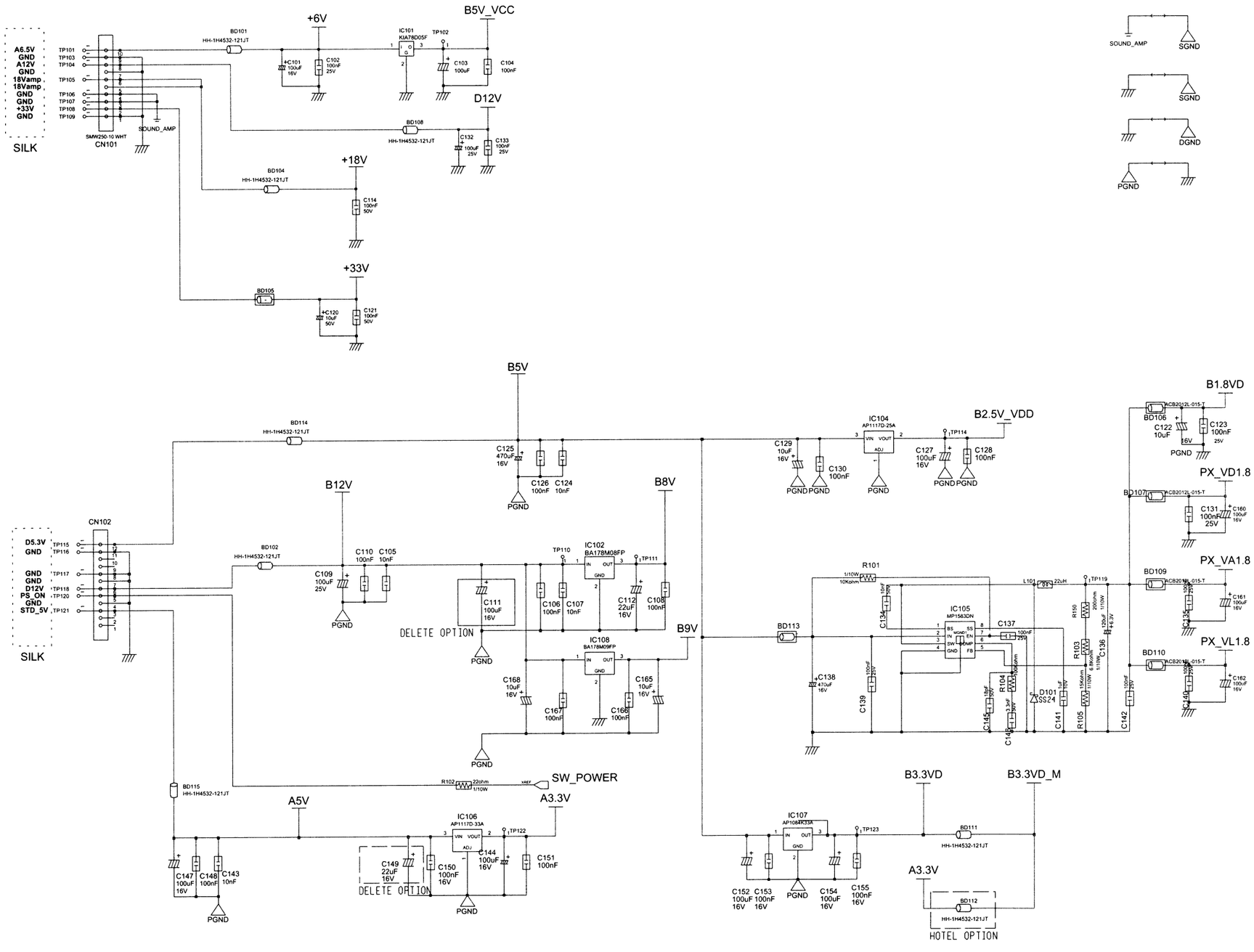
10. Schematic Diagram

10-1 Analog

10-1-1 POWER

This Document can not be used without Samsung's authorization.

———	Power
———	Signal



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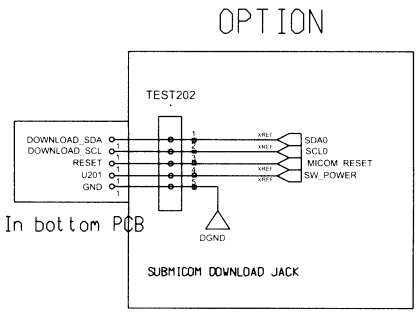
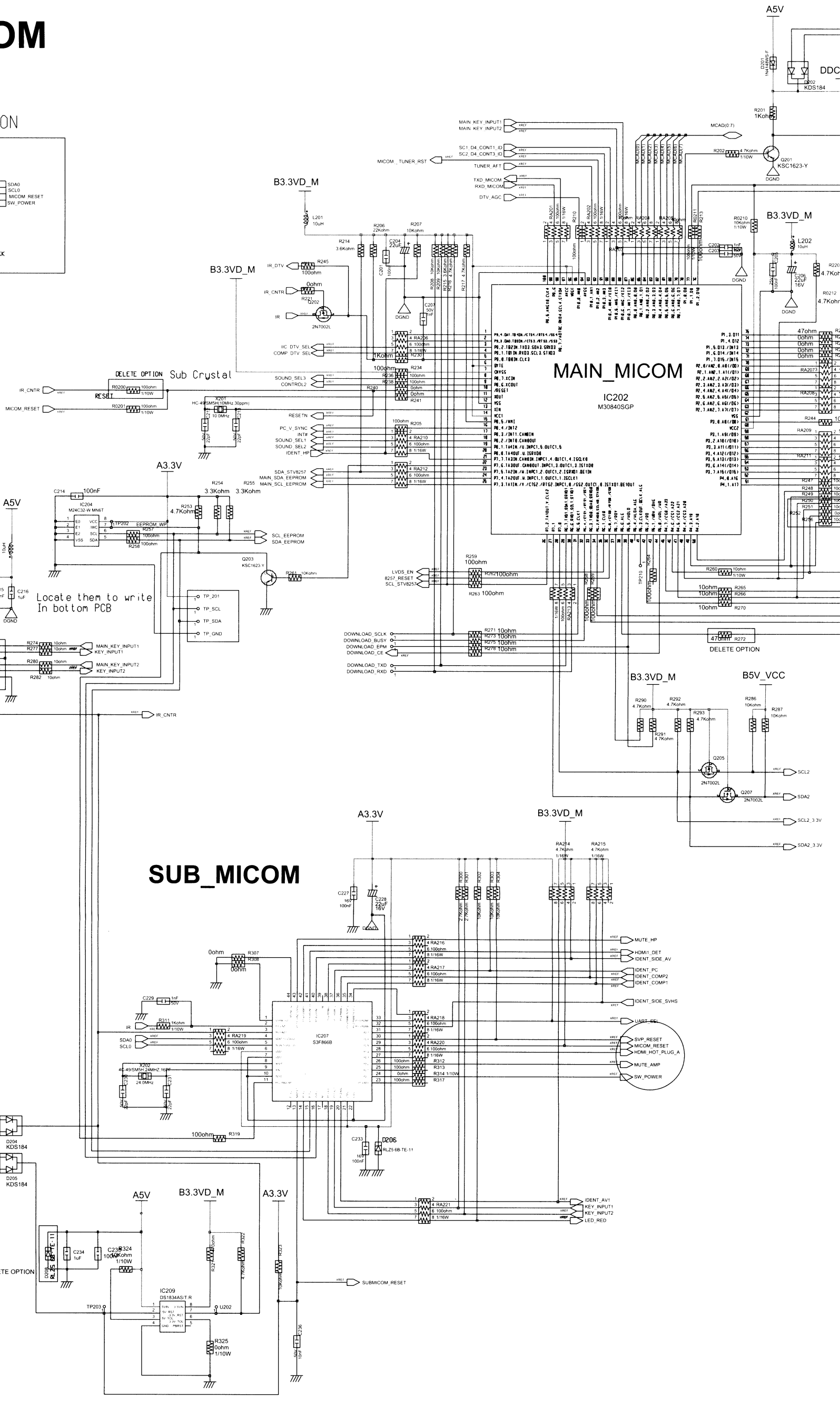
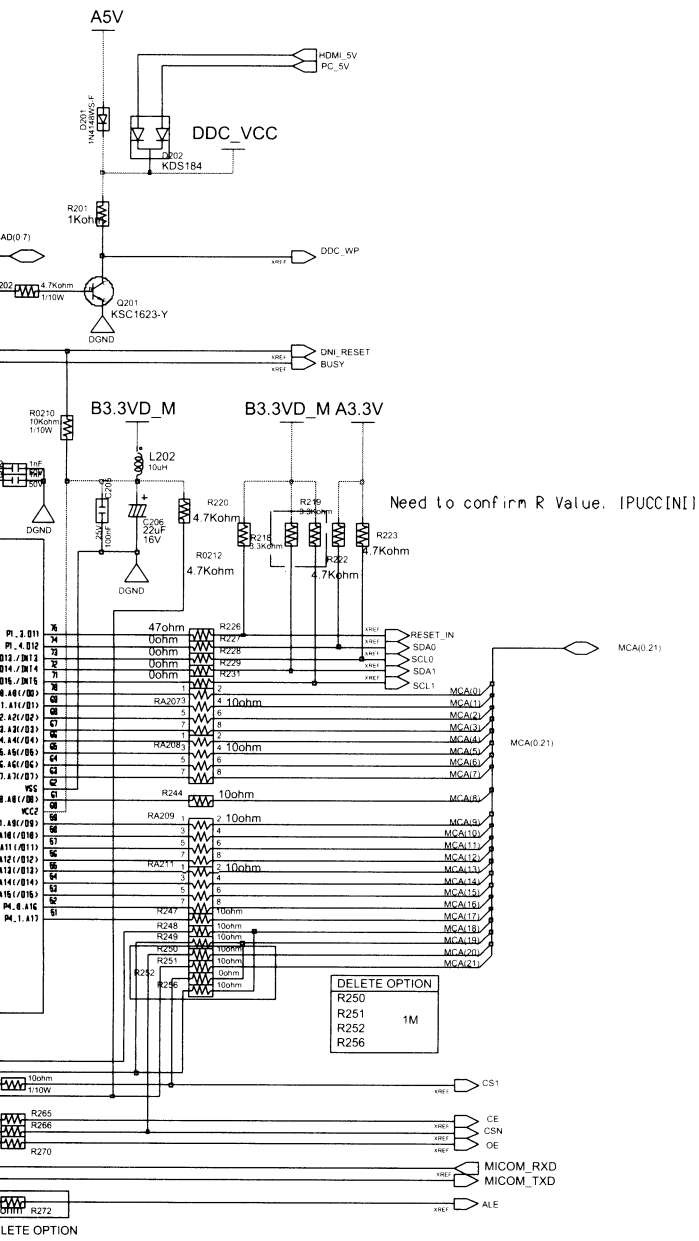
———	Power
———	Signal

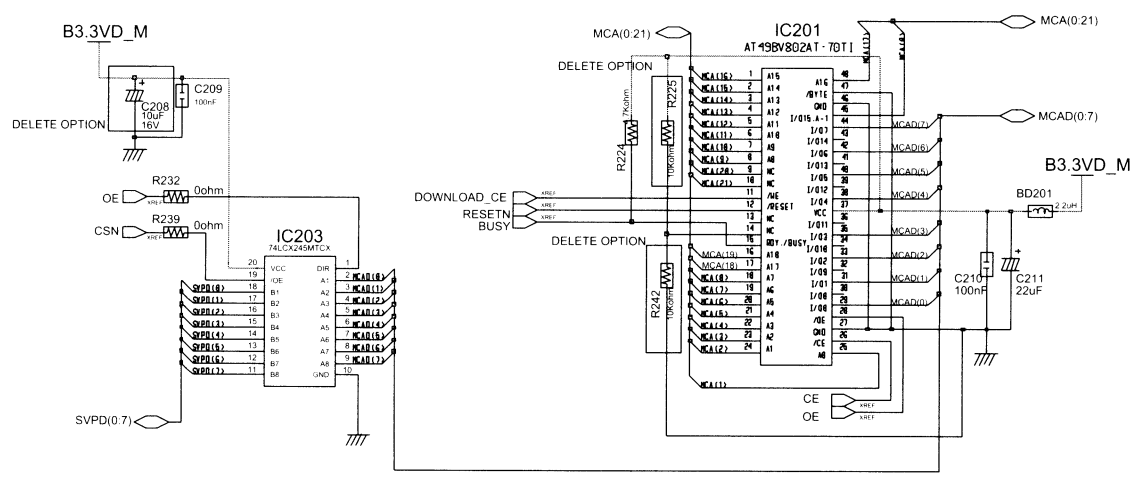
MICOM

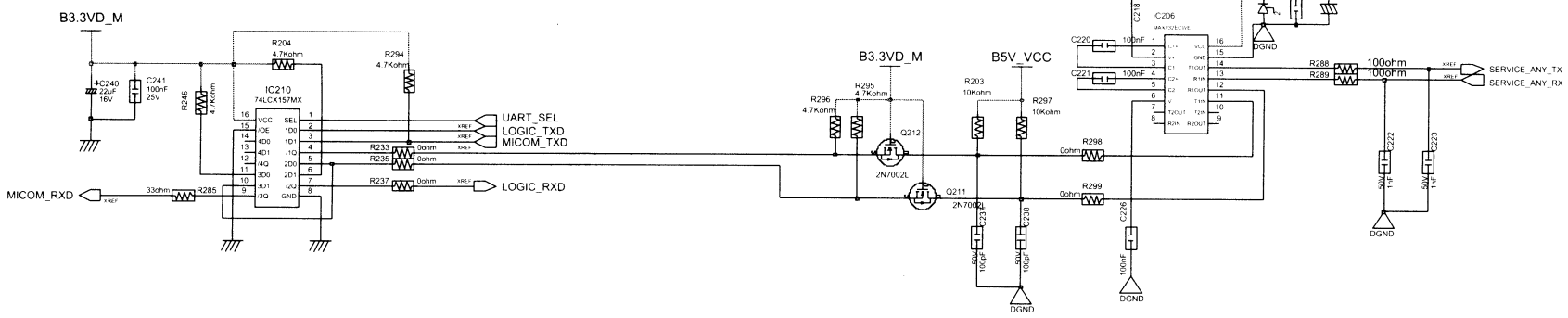





A5V
HDMI_5V
PC_5V
D201
1N4148WS-F
DDC_VCC
D202
KDS184
R201
1Kohm
DDC_WP
Q201
KSC1623-Y
DGND
DNI_RESET
BUSY
B3.3VD_M
B3.3VD_M A3.3V
L202
10uH
C205
22uF
16V
C204
100nF
R220
4.7Kohm
R219
4.7Kohm
R216
4.7Kohm
R223
4.7Kohm
R222
4.7Kohm
R0212
4.7Kohm
Need to confirm R Value. [PUCCINI]
47ohm
0ohm
0ohm
0ohm
R226
R227
R228
R229
R231
RESET_IN
SDA0
SCL0
SDA1
SCL1
MCA(0:21)
RA207
RA208
RA209
RA211
10ohm
R244
R247
R248
R249
R250
R251
R252
R256
DELETE OPTION
R250
R251
R252
R256
1M
CS1
CE
CSN
OE
R265
R266
R270
MICOM_RXD
MICOM_TXD
ALE
R272
B5V_VCC
R286
10Kohm
R287
10Kohm
SCL2
SDA2
Q207
2N7002L
SCL2_3.3V
SDA2_3.3V

FLASH


DELETE -> R225(ONLY 4M FLASH)
DELETE -> R242
B3.3VD_M
C209
100nF
C208
10uF
16V
DELETE OPTION
R232
OE
0ohm
R239
CSN
0ohm
IC203
74LCX245MTCX
SVPD(0:7)
MCA(0:21)
IC201
AT49BV802AT-70TI
DELETE OPTION
R225
R224
10Kohm
R242
DOWNLOAD_CE
RESETN
BUSY
MCAD(0:7)
MCAD(7)
MCAD(6)
MCAD(5)
MCAD(4)
MCAD(3)
MCAD(2)
MCAD(1)
MCAD(0)
B3.3VD_M
BD201
2.2uH
C210
100nF
C211
22uF
CE
OE


B3.3VD_M
C240
22uF
16V
C241
100nF
25V
R246
4.7Kohm
R204
4.7Kohm
R294
4.7Kohm
IC210
74LCX157MX
UART_SEL
LOGIC_TXD
MICOM_TXD
LOGIC_RXD
R233
0ohm
R235
0ohm
R237
0ohm
MICOM_RXD
33ohm
R285
B5V_VCC
R203
10Kohm
R297
10Kohm
R296
4.7Kohm
R295
4.7Kohm
Q212
2N7002L
Q211
2N7002L
R298
0ohm
R299
0ohm
C231
100nF
C238
100nF
C226
100nF
C218
100nF
IC206
C220
100nF
C221
100nF
D210
BZX84C5V6LT1
C217
100nF
C239
22uF
16V
R288
100ohm
R289
100ohm
SERVICE_ANY_TX
SERVICE_ANY_RX
C222
1nF
C223
1nF
DGND

10-1-3 IN_OUT_JACK

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Power
Signal

SCART1

JA333

SC1_SR_OUT
SC1_COMP2_SR_IN
SC1_SL_OUT
SC1_COMP2_SL_IN
SC1_D4_CONT1_ID
SC1_B_COMP2_Pb
SC1_G_COMP2_Y
SC1_R_COMP2_Pr
SC1_FB
SC1_CVBS_OUT
SC1_AV1_CVBS_IN

SCART2

JA332

ANY_SC2_SR_OUT
SC2_AV1_SR_IN
ANY_SC2_SL_OUT
SC2_AV1_SL_IN
SC2_D4_CONT3_ID
SC2_AV_CVBS_OUT
SC2_CVBS_AV1_Y
SC2_AV1_C

AUDIO OUT

JA341

Service_ANY

JA331

RX_DTV_SVC
TX_DTV_SVC
SERVICE_ANY_RX
SERVICE_ANY_TX

COMP1_INPUT(ASIA)

JA336

IDENT_COMP2

COMP2_INPUT(ASIA)

JA342

PC_INPUT

JA335

PC_IN
PC_RED
PC_GREEN
PC_BLUE
DDC_WP
PC_5V
IDENT_PC
PC_SDA
PC_SCL

JA334

PC_S_IN
PC_SR_IN
PC_SL_IN
PC_H_SYNC
PC_V_SYNC

AV (ASIA)

JA338

IDENT_AV1

COMP1_INPUT(EU)

JA339

COMP1_SR_IN
COMP1_SL_IN
COMP1_Pr
COMP1_Pb
IDENT_COMP1
COMPT_Y

SIDE_AV

AV2_SIDE_Y
AV2_SIDE_C
IDENT_SIDE_SVHS

SIDE_SVIDEO INPUT

SIDE_AV_SR_IN
SIDE_AV_SL_IN
AV2_CVBS
IDENT_SIDE_AV

SIDE_AV INPUT

IDENT_HP
HP_OUT_L
HP_OUT_R

SIDE_HP

DTV_Pr_R
DTV_Y_G
DTV_Pb_B
COMP1_Pr
COMP1_Y
COMP1_Pb
DTV_COMP1_Pr
DTV_COMP1_Y
DTV_COMP1_Pb
COMP_DTV_SEL

10-1-4 HDMI

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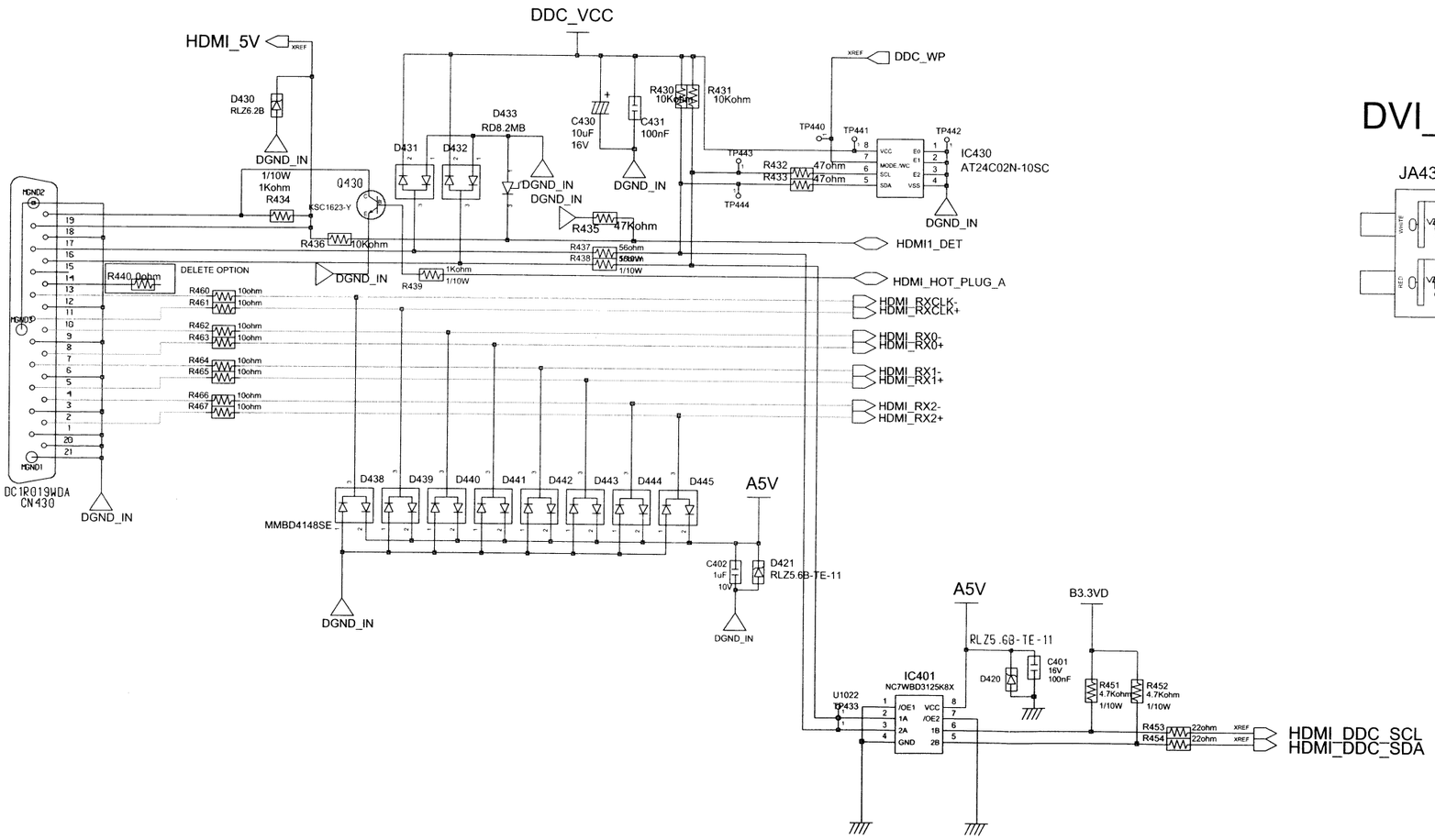
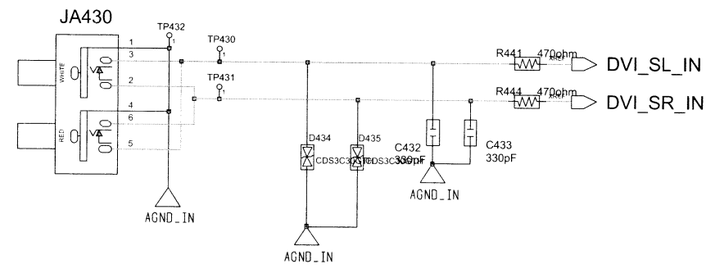
———	Power
———	Signal

HDMI_INPUT



DVI_S_IN

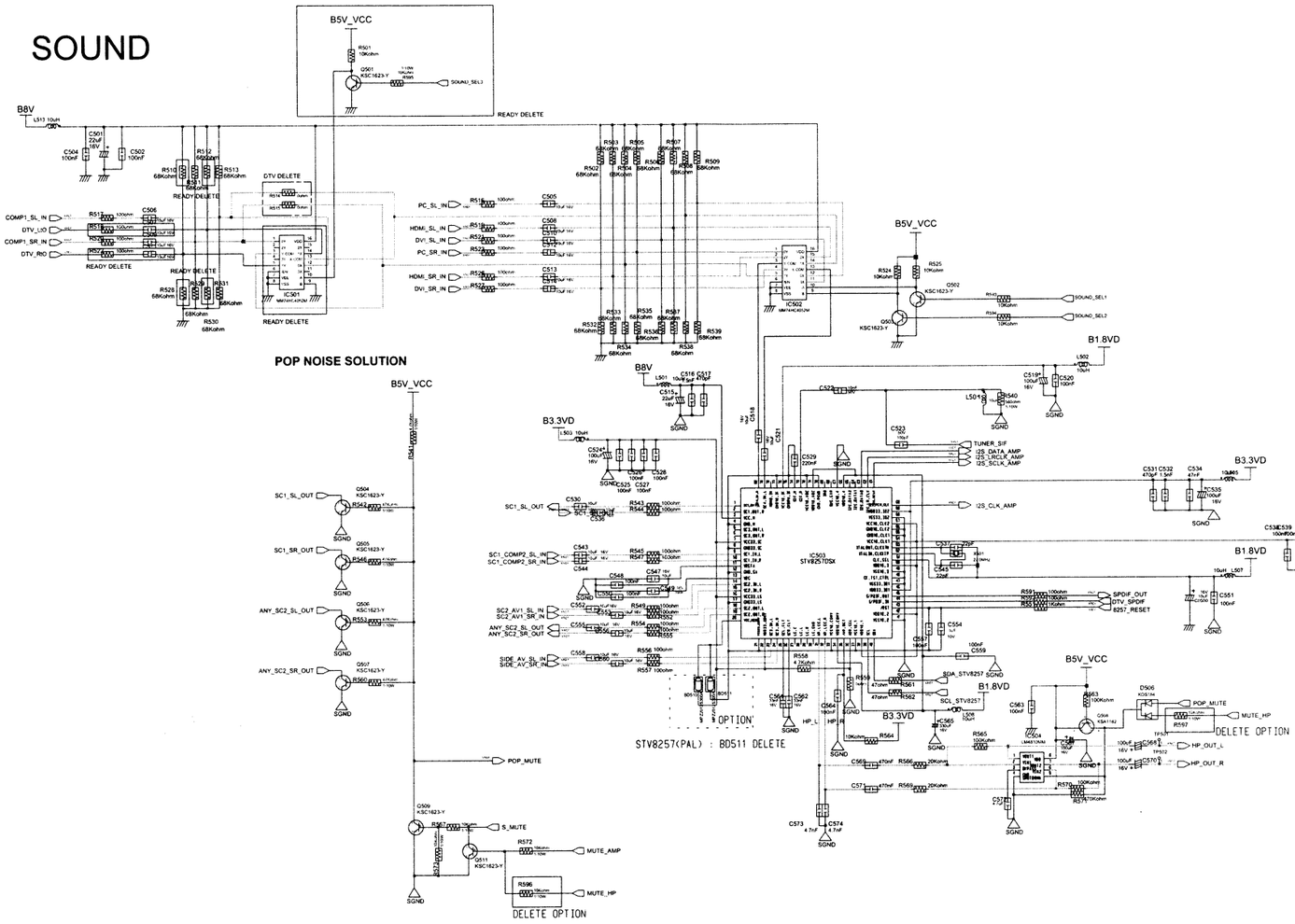


10-1-5 SOUND

This Document can not be used without Samsung's authorization.

———	Power
———	Signal

SOUND



SOUND AMP

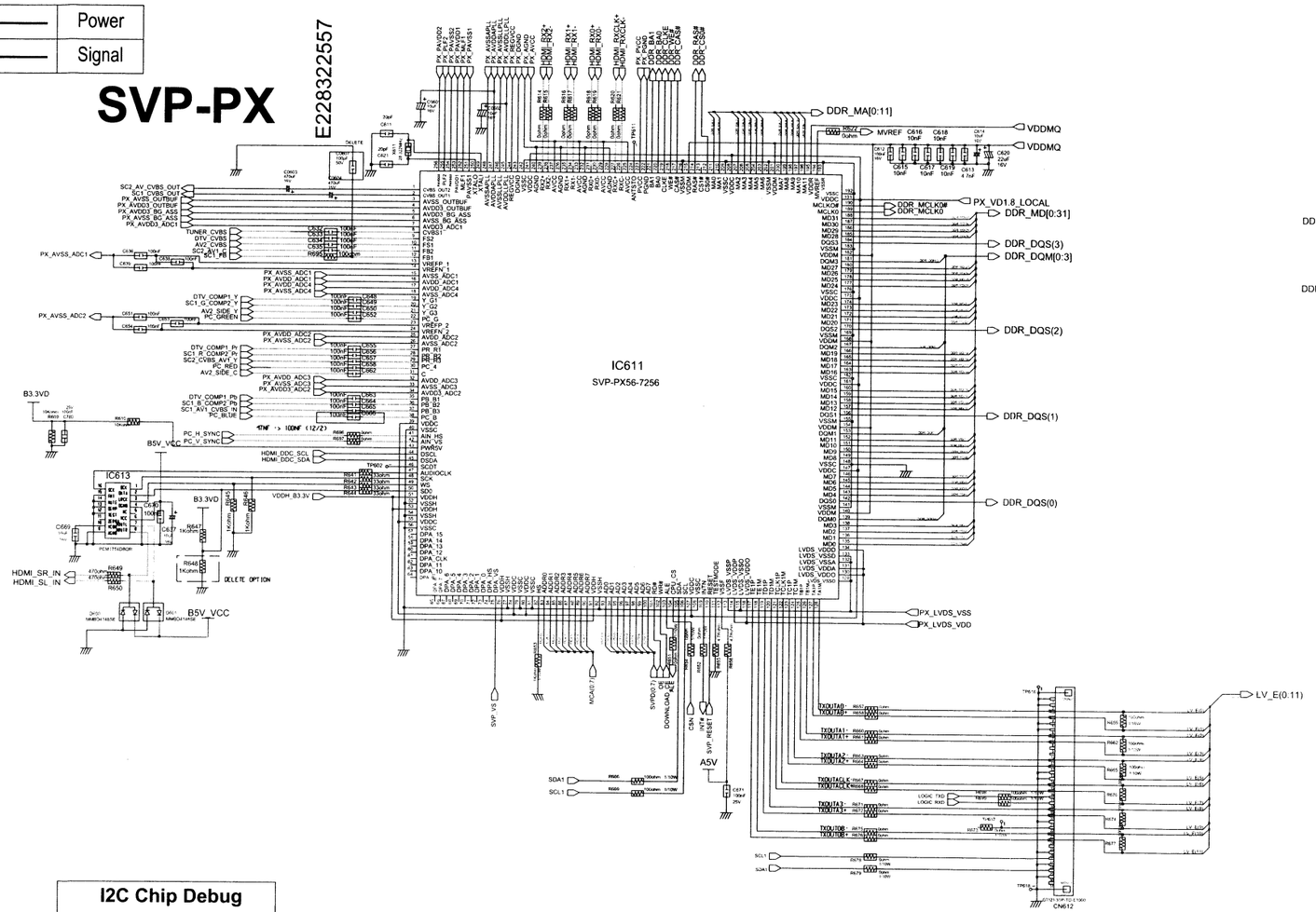
10-1-6 SVP-PX

This Document can not be used without Samsung's authorization.

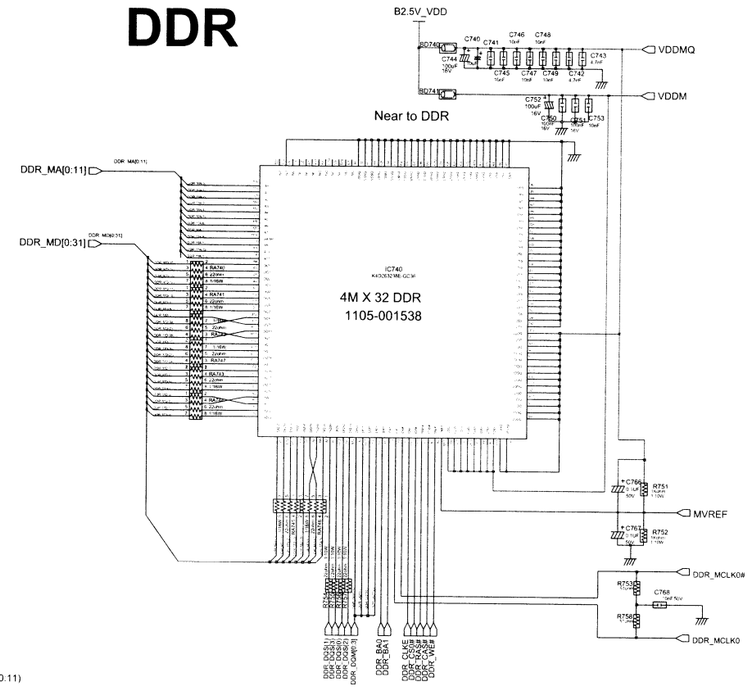
———	Power
———	Signal

SVP-PX

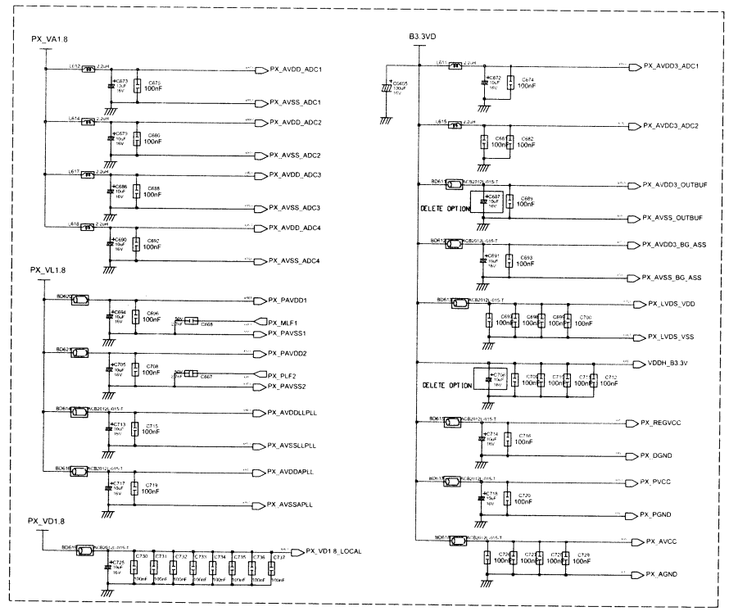
E228322557



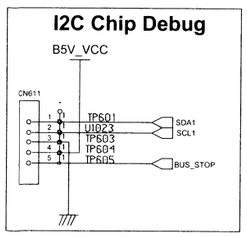
DDR



PX_Power



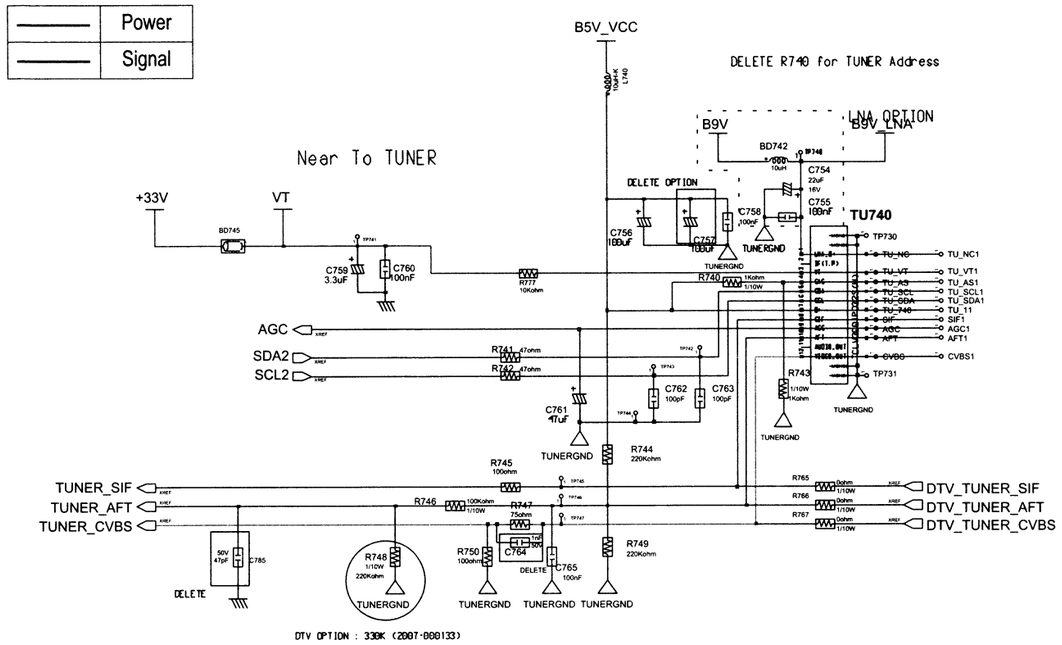
I2C Chip Debug



10-1-7 TUNER

This Document can not be used without Samsung's authorization.

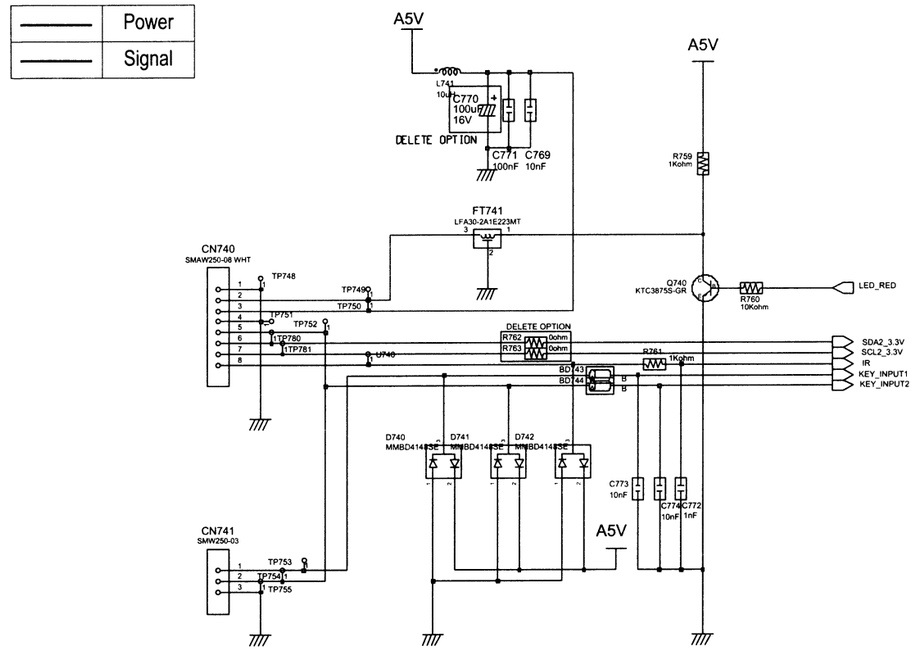
———	Power
———	Signal



10-1-8 FUNCTION

This Document can not be used without Samsung's authorization.

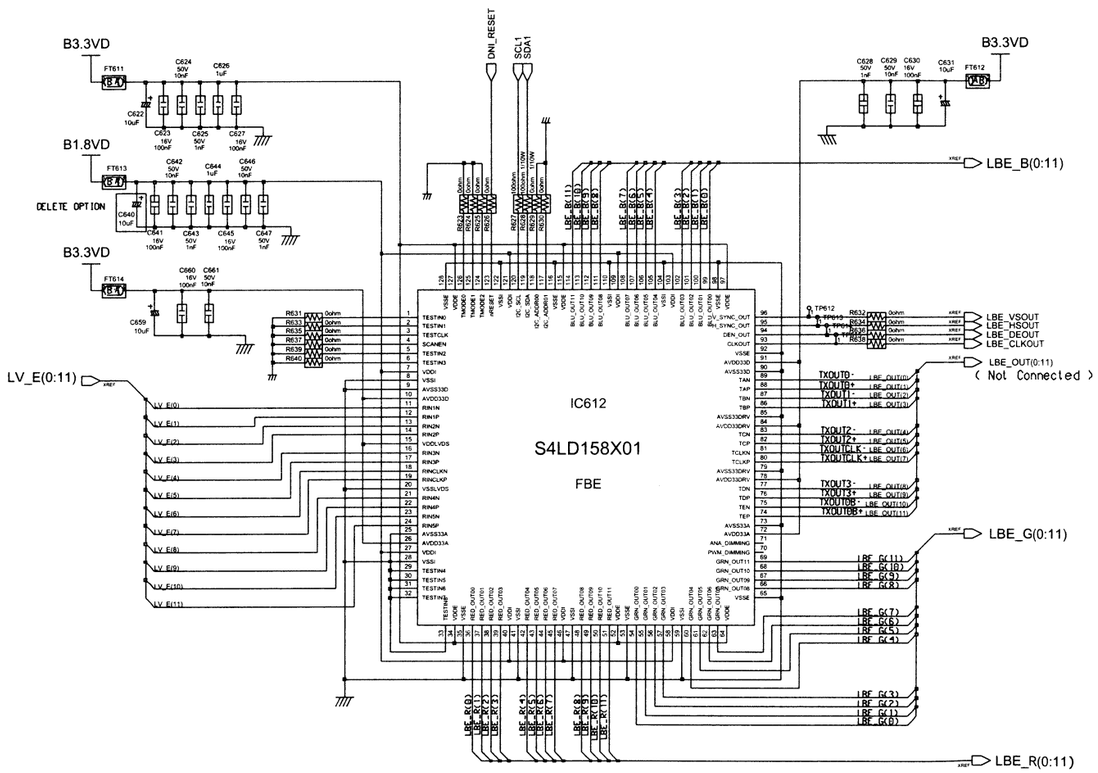
———	Power
———	Signal



10-1-9 FBE_Option

This Document can not be used without Samsung's authorization.

———	Power
———	Signal



10-1-10 FRC

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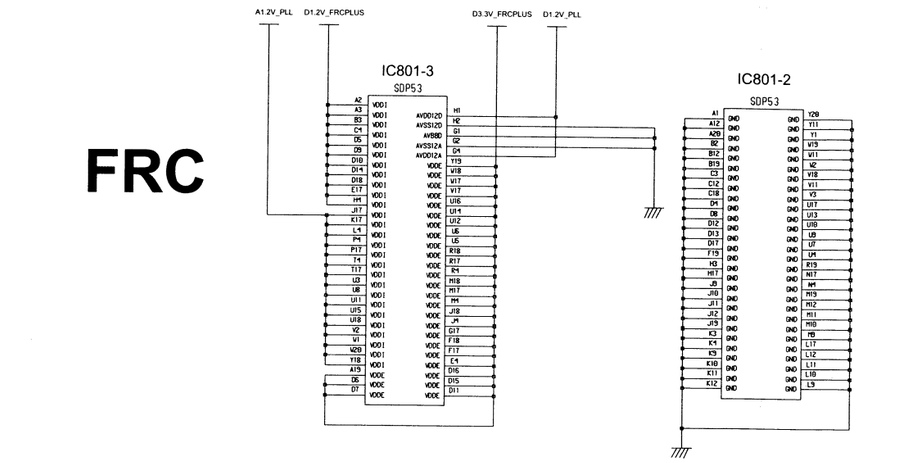
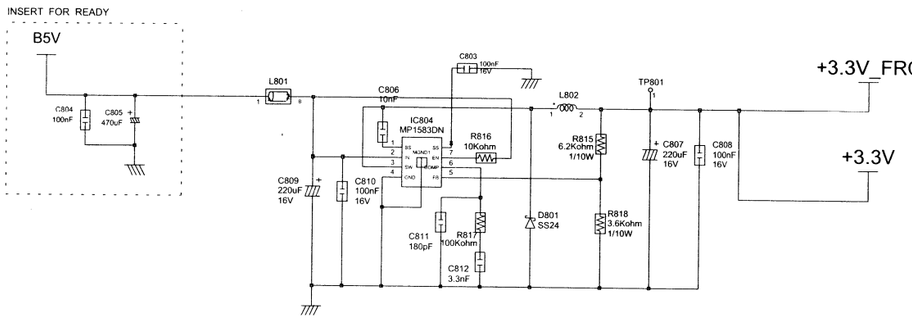
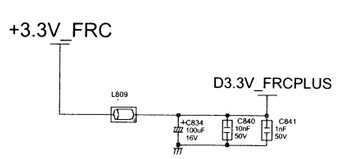
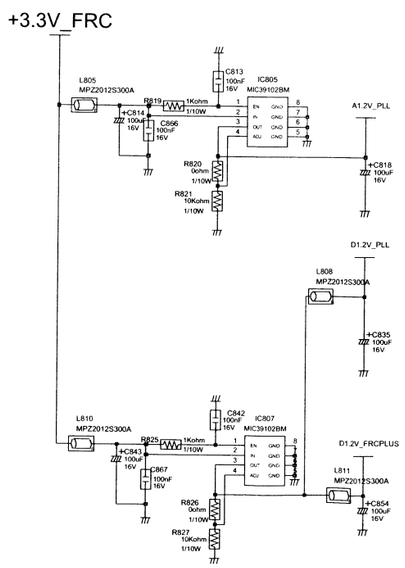
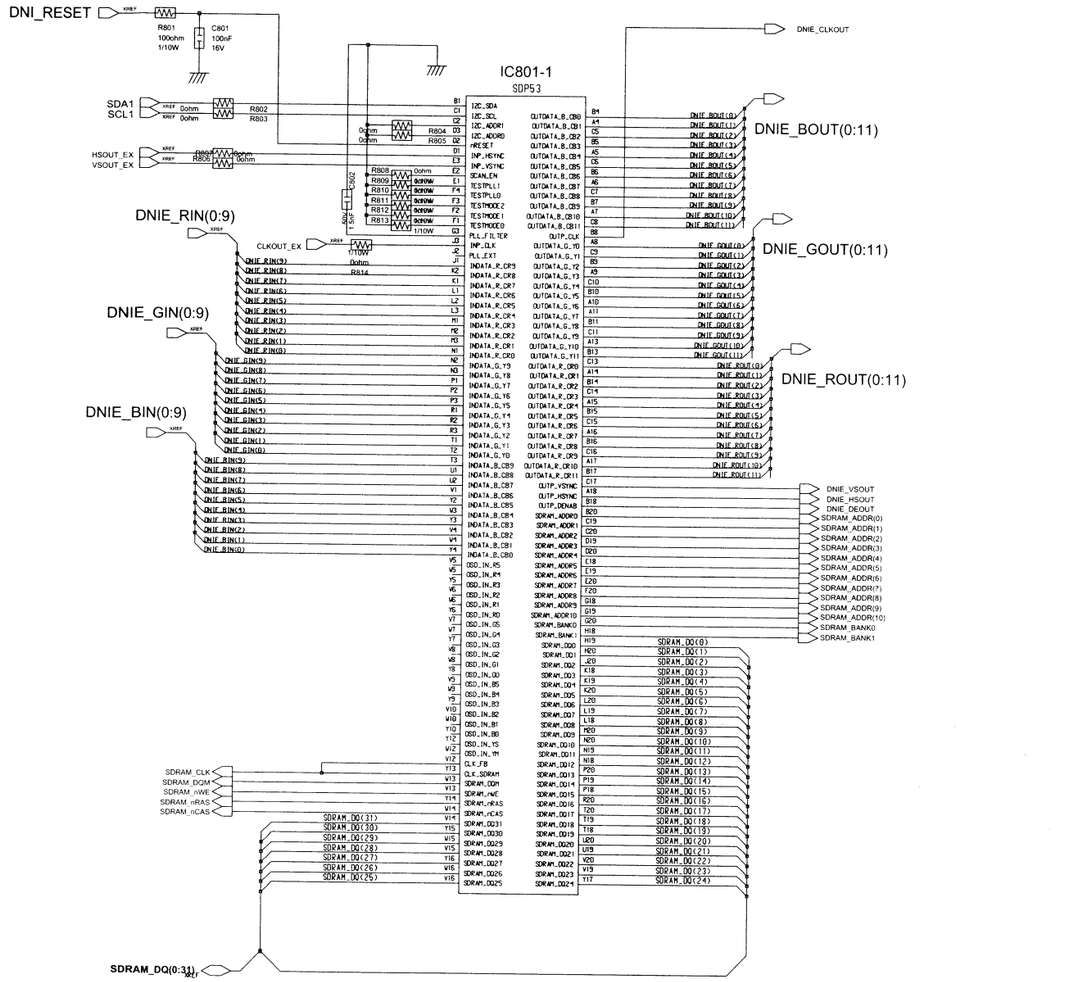
FRC

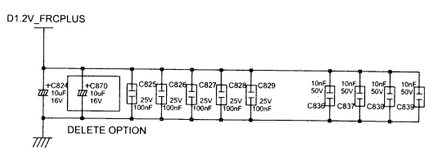


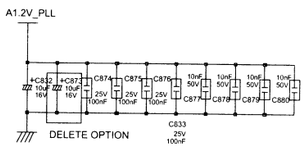


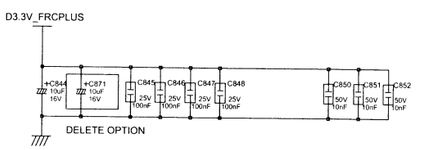


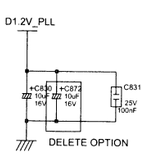












10-1-11 FRC Memory

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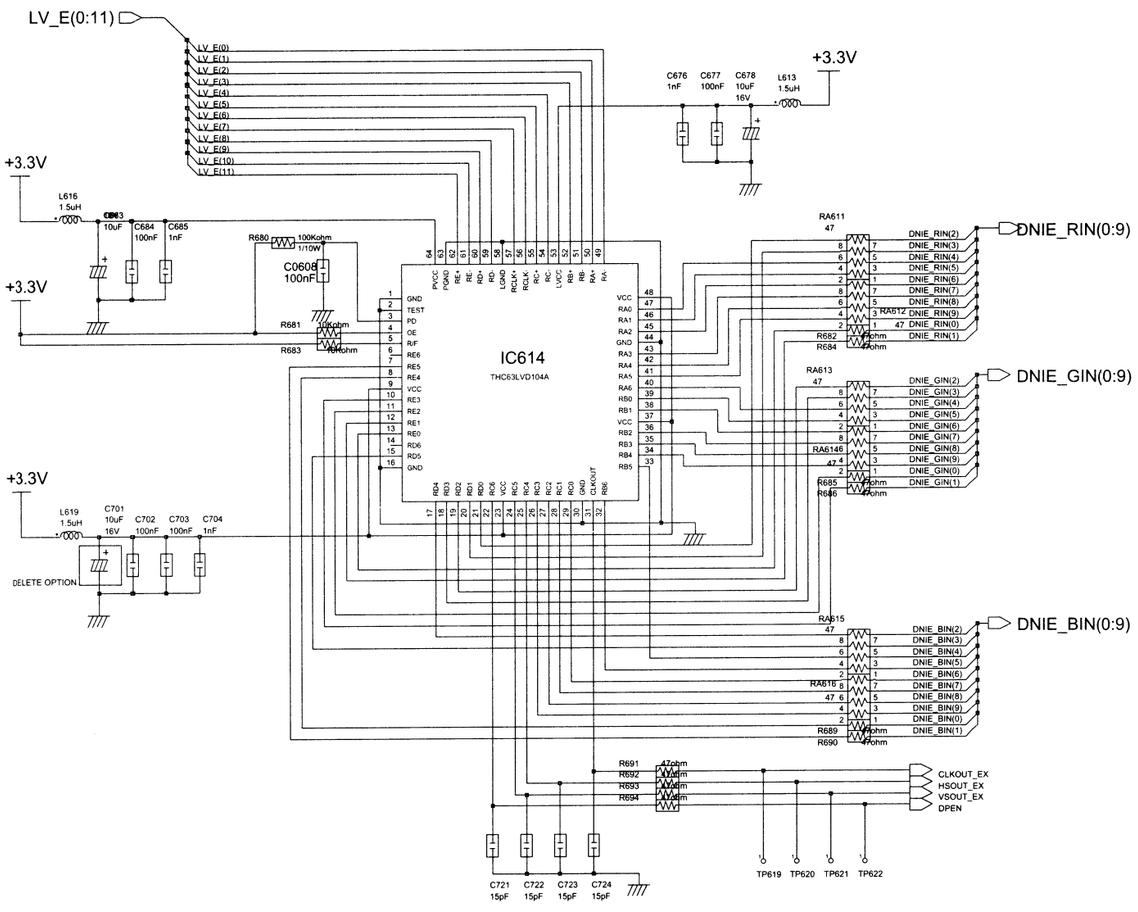
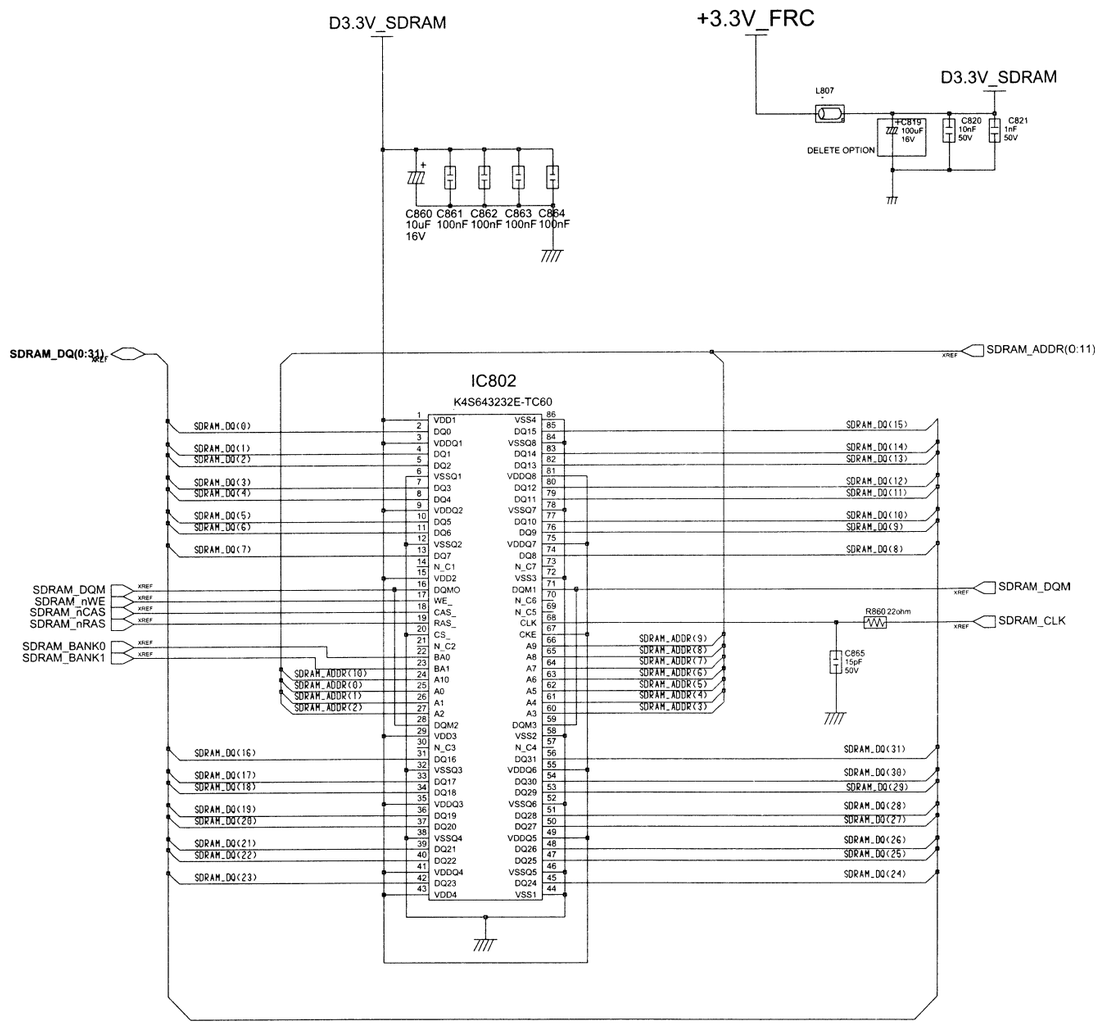
LVDS RX (FOR FRC)



FRC Memory



10-1-12 LVDS

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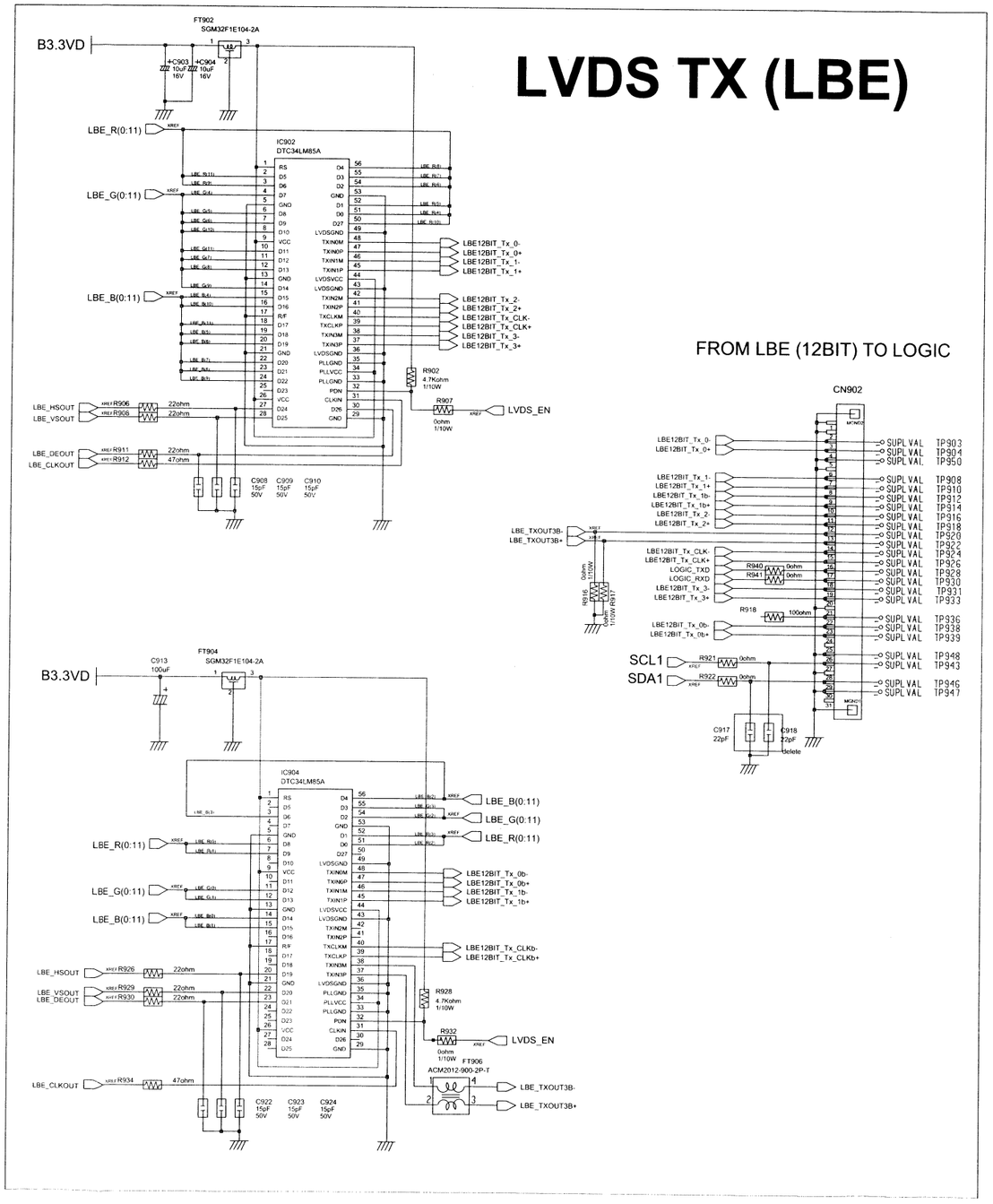
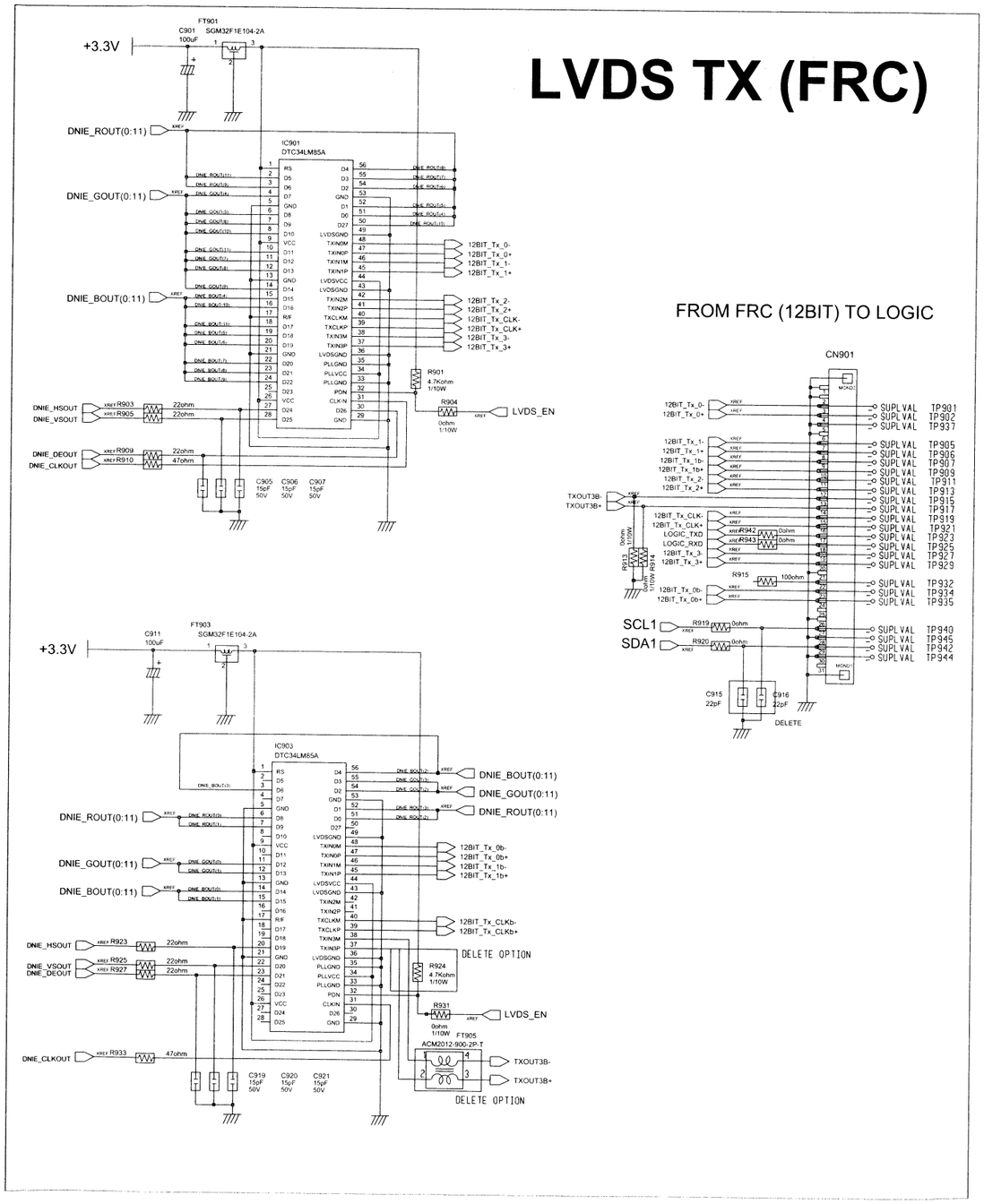
———	Power
———	Signal





10-1-13 DTV / TUNER / POWER

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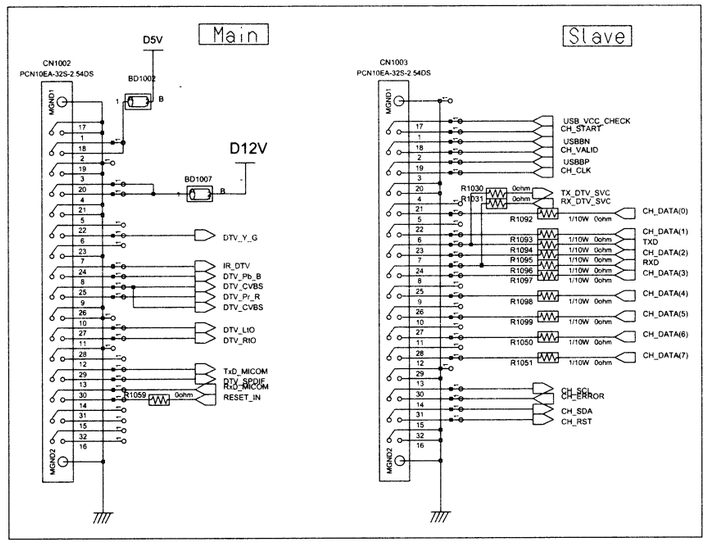
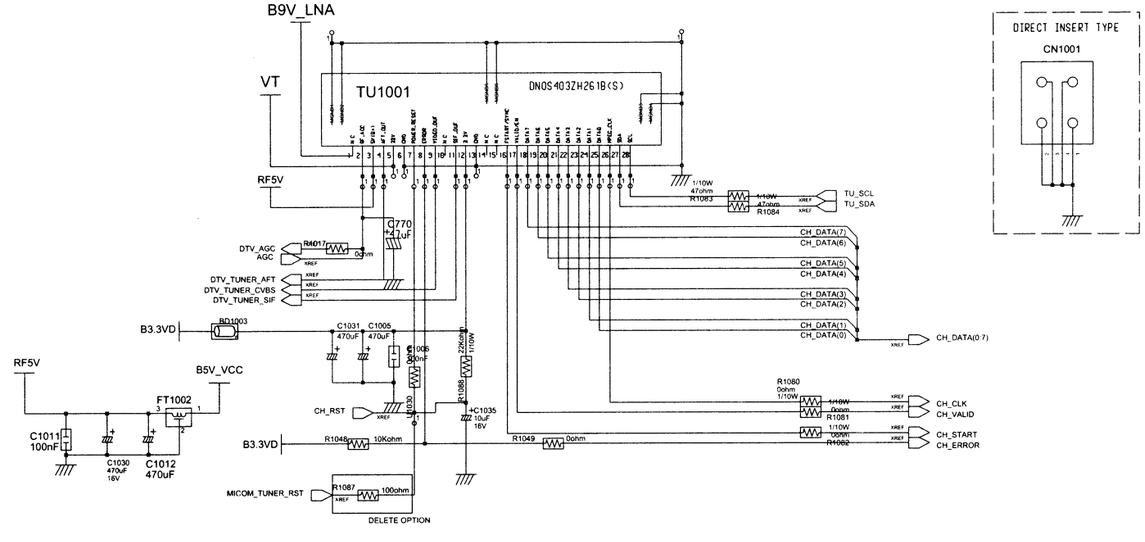
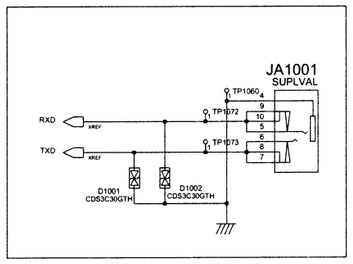
DTV MODULE CONNECTION



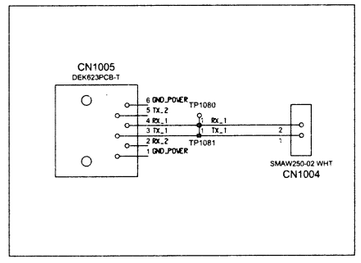
DIGITAL TUNER



PHONE JACK



MODEM JACK



USB

OPTICAL SPDIF OUT